



FRIDAY, MARCH 3, 1876.

### Contributions.

#### The Transandine Railroad.

No. 118 CHAMBERS STREET, NEW YORK, Feb. 25, 1876.

TO THE EDITOR OF THE RAILROAD GAZETTE:

We beg to hand you herewith some information with regard to the proposed "Transandine Railway" of South America, and trust you will consider it of sufficient importance to give it publication in your valuable journal. The particulars which we give below will show the very careful surveys that have been made, as well as the fact that Messrs. Clark & Co., of Valparaiso, the projectors of this railroad, have been awarded a first-class medal by the Santiago International Exposition, in connection therewith.

"The Judges of the Fourth Section, Santiago International Exposition, commissioned to examine plans, projects, and studies or surveys concerning railways, have awarded the first-class medal to Messrs. Clark & Co., for their very interesting project of the "Transandine Railroad," from Santa Rosa to Buenos Ayres, and a second-class medal to the engineer, Mr. Victor Pretot Freire, for his valuable co-operation in the surveys of the railroad.

"List of Plans presented at the Exposition.—General plan of the survey across the Andes between Santa Rosa, the terminus of the Valparaiso Railway, and the town of Mendoza, from the surveys of the engineers, Messrs. E. Waring Davis and J. M. Figueroa, assisted by Messrs. L. Duval, A. Baker and L. Galway, 1873-75. The Chilean section was surveyed by the engineer, Mr. Victor Pretot Freire with the assistance of Messrs. De Lacy and Saldivia.

"Plan of the second section, comprising only the Cordilleras, surveyed by the same engineers, as above named.

"Plan comprising only the Chilean section, surveyed by the engineer Mr. Victor Pretot Freire and assistants.

"Seven plans, comprising the survey between Buenos Ayres and Villa de Mercedes, a distance of 681 kilometers [425 miles], with profile and horizontal sections.

"One general plan of the line between Buenos Ayres and Chili.

"Fifty-two plans of sections, bridges, etc.

"General plan of the survey between Villa de Mercedes and Mendoza.

"Twenty-three plans comprising the details of above, and plans of stations, etc., etc."

W. H. CROSSMAN & BRO., Representatives in New York of Messrs. Clark & Co., Valparaiso, Chili.

#### A Strange Accident.

BOSTON, February 24, 1876.

TO THE EDITOR OF THE RAILROAD GAZETTE:

This morning about 5:45, engine No. 7 on the New York & New England Railroad began to blow. The engine was standing in the engine-house, fired up ready to go on local freight. The watchman looked at the gauge and found it indicated but 30 lbs. He then went for one of the shop-hands to come and see what the matter was. On his arrival this shop-hand immediately began screwing down the pop-valves (Richardson's), and continued doing so until he had screwed the nuts  $\frac{1}{2}$  of an inch from their former position. At this point an explosion took place, and the engine started backwards out the rear of the shop, making a hole over 12 feet square. The tender was run out its whole length into the yard, dropping about 18 inches as it left the house. When the fog caused by the escaping steam had cleared away and the engine cooled down, it was discovered that four stay-bolts had given way, allowing the boiler head to bulge out perhaps  $\frac{1}{2}$  of an inch; this bulging opened the throttle, and, as the fireman had just put the lever in back while he oiled round, the engine started backwards. This, of course, relieved the pressure greatly, or else the consequences would have been worse. The watchman and shop-hand were both on the cab, and were thrown or jumped upon the floor. The watchman, striking upon some empty oil barrels, had one or two ribs broken and a severe cut on the side of his head. The pops were set to blow at 130 or 135, and had not been altered since they were set. Wednesday night, when the engine came in, the siphon to the gauge was leaking badly, and the engineer reported it for repairs. It was taken off, repaired and put back, and rubber gaskets were used in the joints. One of these gaskets swelled so as to completely fill the pipe, and, of course, no steam could reach the gauge.

OLIVER D. STIMPSON.

#### Speed and Load.

TO THE EDITOR OF THE RAILROAD GAZETTE:

While the topic of speed gauge is in my mind, I would engage your time a little further. If there is no absurdity in the question, and you deem it of sufficient interest to call attention to the subject, will you propose this query in the columns of the Gazette, viz.:

1. What percentage of wear and tear of track would be saved annually on a road having ten freight trains of say twenty loaded cars each, passing over it daily each way, if the speed could be kept down to within fifteen miles per hour over each mile of road, instead of running at the irregular rate of speed that it is well understood freight trains almost always do, rules to the contrary notwithstanding?

2. If with speed at fifteen miles per hour a locomotive can haul eighteen loaded cars over a road the maximum grade of which is 63 feet to the mile, and with no very difficult curves, how many more cars could be hauled should the speed be increased to twenty miles per hour?

I am aware that the second query is more easily solved than the former, since by actual experiment just what could be done would be readily shown, provided the speed could be positively controlled, as it can be with the speed recorder.

While I recognize the difficulty of answering the first ques-

tion with any degree of accuracy, it occurs to me that there are intelligent roadmasters, or observant engineers, who are able to give some kind of an estimate that would be interesting to the railroad public to know.

I would furthermore be glad to see your own views expressed on both questions at such time as you deem proper, for both of them involve so largely and so directly the question, the all-important question, of economy in railway administration. X.

[We are totally unable to answer our correspondent's first inquiry, simply because we have no data from which to draw any deductions. If any of our readers have any such data bearing on this subject, we would be glad to receive and publish them.

With reference to the second inquiry, it may be said that it does not admit of so decided an answer as he seems to suppose. The number of cars which a locomotive will draw is the number it can take up the steepest grade or most difficult place on the road. At 15 miles per hour the resistance on a grade of 60 ft. per mile is 30 lbs. per ton, and at 20 miles per hour it is 31 lbs. Therefore, if a locomotive could draw 30 cars at the one speed, it could draw 31 at the other. But there would be no difficulty in drawing 31 everywhere excepting on the steepest grade; therefore, all that it would be necessary to do would be to run at a slower speed at that place than anywhere else, which is exactly what is done in ordinary practice. A small difference in the average speed has, in fact, very little influence on the capacity of a locomotive.—EDITOR RAILROAD GAZETTE.]

#### Master Car-Builders' Association—Circulars of Inquiry.

CIRCULAR NO. 3.—UPON IMPROVEMENTS MADE DURING THE PAST YEAR IN THE DESIGN, CONSTRUCTION AND MATERIALS OF CARS.

To the Members of the Master Car-Builders' Association and others having charge of Passenger and Freight Cars:

GENTLEMEN: At the last annual convention of the Master Car-Builders' Association, it was thought desirable that information should be collected and a record kept of the improvements made in the construction of cars during the past year, and to that end a committee was appointed to report to the Association, as far as practicable, all improvements made during that time. In order to enable that committee to make their report as valuable as possible, it is desirable that they should have information concerning not only the improvements which have originated during the past year, but of all such as have been perfected and applied to practical use during that period. They especially desire reports of experiments made to determine the value of any inventions, materials or new methods of construction. In order to put their request for information in the form of a specific inquiry they present the following questions:

1st.—Have you made, applied or observed, during the past year, any improvements in the construction of any of the various forms of freight, passenger or sleeping cars, or in that of wheels, axles, journal-bearings or boxes, trucks, brakes, draw-bars, couplers, buffing arrangements, framing, doors or roofs of freight cars, or in the same parts of passenger cars, or in the platforms, seats, doors, windows, or the method of warming, lighting or ventilating such cars?

2d.—If any such improvements have come under your notice or care, you are requested to send the committee a description, and if possible, a drawing sufficiently clear to enable a good mechanic to construct the improvement therefrom. The committee will also add that information of new schemes and undeveloped ideas is not desired, but only descriptions of such improvements as have been put into some practical form.

All replies should be addressed to the Chairman of Committee.

M. N. FORNEY,

Chairman, No. 73 Broadway, New York.

W. W. WILCOX,

Chicago, Burlington & Quincy Railroad, Aurora, Ill.

W. T. HILDEBR,

Harrisburg Car Works, Harrisburg, Pa.

CIRCULAR NO. 5.—UPON DRAW BARS AND BUFFERS.

At the last annual convention the committee on this subject made no report, but owing to the importance of the subject, the committee was continued. They, therefore, renew their inquiries this year, and hope that members will reply as early as possible:

1st.—Which would you recommend as the most economical for freight cars—wrought or cast-iron draw-bars?

2d.—Can you give the committee the first cost, and also the proportion of failures of wrought and cast-iron draw-bars?

3d.—What should be the plan of attachment at back end of draw-bar? Please show this by drawing if possible.

4th.—Do you know of any plans for self-coupling, or for dispensing with the use of links and pins, or for using a continuous draw-bar, which you think practicable? If so, please describe them.

5th.—Have you any information as to what it costs your company a year for links and pins, and if so, will you furnish it?

6th.—Do you think the springs now in general use of sufficient strength and range of motion; or would you suggest any change or improvement?

Please give the committee any other information bearing upon this subject that you may consider of importance.

All replies should be addressed to the Chairman of Committee.

F. D. ADAMS, Chairman.

Boston & Albany Railroad, Springfield, Mass.

C. A. SMITH,

No. 113 Liberty street, New York City.

L. GAREY,

New York Central & Hudson River Railroad, New York City.

CIRCULAR NO. 6.—UPON THE BEST STYLE AND MOST ECONOMICAL TRUCK FOR FREIGHT CARS; BEST POSITION AND HANGING OF BRAKES AND POSITION OF BRAKE-SHAFT (RIGHT AND LEFT HAND) WHEN STANDING ON THE CAR.

At the last annual convention the committee appointed to report on this subject were unable to furnish as full information as was considered desirable, owing to the very few replies received in answer to their circular. Owing to the importance of the subject, the committee was continued, and they, therefore, renew their inquiries of last year, with the hope that they will receive full replies as early as possible:

1st.—Do you consider an iron or wood-frame truck the best? and what are your principal reasons for preferring one or the other?

2d.—Is a truck with swinging bolsters, in your judgment, preferable to one with a rigid frame? and if so, or not, please state your reasons.

3d.—Can a locomotive, under all circumstances, start and draw more cars with swinging-bolster trucks than with rigid frame trucks? If you use swinging-bolsters, please send draw-

ings showing position of hangers, and also state your opinion of the merits of such trucks.

4th.—Should the side-bearings take any portion of the weight, if so, how much?

5th.—What kind of side-bearings do you consider the best?

6th.—Would you recommend for either iron or wood-frame trucks a short spring in the jaw over the boxes?

7th.—Do you have any difficulty in keeping iron-frame trucks square? Do you brace such trucks, and if so, in what manner, and with what results?

8th.—What distance from center to center of axles would you recommend as the best?

9th.—Is a center-bearing truck, in your judgment, easier on the track and wheels than it would be with a portion of the weight on the side bearings?

10th.—How much leverage should be allowed on the brake levers to secure efficient braking and the preservation of wheels?

11th.—Should freight cars have brakes upon both trucks? and should such brakes be placed outside of the wheels or between them?

12th.—Are your brakes so constructed and applied as to give a uniform or equal pressure upon each wheel? If so, please send description and tracing of such brakes?

13th.—Which do you consider the best plan of hanging brakes, to body of car or to truck frame?

14th.—Which, in your judgment, is the best position for the brake shaft? Should it be on the right or left hand corner of the car as you stand facing the car?

15th.—Would you, with the consent of your superior officers, favor the idea of a standard freight car-truck, duplicate in all its parts except wheels and springs?

All replies should be addressed to the Chairman of Committee.

D. HOTT, Chairman,

New York Central & Hudson River Railroad, West Albany, N. Y.

JOHN KIRBY,

Lake Shore & Michigan Southern Railroad, Cleveland, Ohio.

W. F. SMITH,

Cleveland, Columbus, Cincinnati & Indianapolis Railroad, Cleveland, Ohio.

CIRCULAR NO. 8.—UPON CAR WHEELS, BEST METHOD OF FITTING, FLANGE WEAR AND CAUSES, MILEAGE AND BREAKAGE, &c.

At the last annual meeting of the Association the undersigned were appointed a committee to gather such information as could be obtained relative to the subject mentioned above, and present to the Association at its next annual meeting, such facts and general information as may be deemed of interest and value to our fraternity. In furtherance of this subject, your committee respectfully call your attention to the following interrogations. Hoping every member of the Association will not only reply fully and promptly to these questions, but include the benefit of their experience in any way bearing upon the subject:

1st.—Do you finish the wheel-seat of axles straight or tapering? if tapering, how much do you allow in the length of the seat?

2d.—In boring wheels do you run cutters through without reaming, or bore with reamers following the cutters in the same boring bar?

3d.—What is the maximum and minimum pressure (in pounds) required to press the wheels on the axle?

4th.—Do you find the flange wear of wheels in six-wheel trucks to be the same in proportion as in four-wheel trucks? if not, please give the proportion as nearly as possible.

5th.—Which in your opinion gives the greater mileage, a broad or narrow-tread wheel?

6th.—Do you use roller side bearings? if so, please describe them.

7th.—Please give your theory as to the cause of the wear of the flange and wheels.

8th.—Are the wheels you are using chilled entirely across the tread and flange? if not, what portion is not chilled?

9th.—Do you find wheels not chilled uniformly the entire circumference of the wheel?

10th.—Do you keep a record of the mileage made by wheels under passenger or freight equipment, or do you estimate the mileage from the length of time in service?

11th.—Do you caliper wheels in order to have two wheels of the same circumference on the same axle? if so please describe the instrument used.

JOHN KIRBY, Chairman,

Lake Shore & Michigan Southern Railway, Cleveland, Ohio.

J. W. VAN HOUTEN,

Pennsylvania Railroad, West Philadelphia, Pa.

W. E. CHAMBERLIN,

Boston & Albany Railroad, Allston, Mass.

CIRCULAR NO. 10.—UPON ELLIPTIC, COMBINATION, AND OTHER CAR SPRINGS USED ON PASSENGER CARS.

The committee appointed to make a report on car springs desire to submit the following inquiries, which please answer as promptly and as fully as possible:

1st.—What kind of spring do you consider as best adapted for carrying the bodies of passenger cars?

2d.—If an elliptic spring is used, what distance between bands do you think it should have under the car when empty?

3d.—What length of spring, thickness and width of plates would you recommend for elliptic springs? and how many in a group for four wheeled trucks?

4th.—What kind of springs would you recommend for equalizing bars for passenger cars, what range of motion should they have, and what should be their location? In answering the last inquiry, please give the distance between the centers of springs and the centers of axles.

5th.—What kind of springs would you recommend for draw or buffer springs.

6th.—Do you think a combination of springs will make a car ride better than to have both bolster and wheel springs the same make?

7th.—Which is the best method of hanging a car to make it ride well?

8th.—Have you used or seen in use upon passenger cars all coil, all elliptic, or rubber springs, and which gave the best results?

9th.—Which in your opinion is the best wheel and bolster spring for freight cars?

10th.—Should there be a wheel spring in combination with bolster springs for freight cars?

All replies should be addressed to the Chairman of Committee.

B. K. VERBRYCK,

Chairman, Chicago, Rock Island & Pacific Railroad, Chicago, Ill.

C. E. GAREY,

Harlem Railroad, Morrisania, N. Y.

D. C. RICHARDSON,

Boston and Maine Railroad, Lawrence, Mass.

#### Transportation in Congress.

In the Senate, Feb. 24:

Mr. Windom, of Minnesota, presented the memorial of the New York Cheap Transportation Association. It sets forth that the old common law of highways was based upon the principle of public ownership and private use, but when steam rendered the construction of a new and improved system of highways possible this function of Government was delegated to associations of individuals without sufficient restrictions and safeguards. The result is our present inadequate, incongruous and chaotic system of transportation, in which mismanage-



ment and irregularities have been so frequent, that discredit has been thrown upon American enterprises in all the financial centers of the world. The interests of both stockholders and the general public have, in many cases, been willfully disregarded by unprincipled managers, who do not exercise even the selfish interest of fostering commerce in order that it may yield the transporter a legitimate revenue. The Government regulates our banking and other interests, yet here is an interest which in importance overshadows them all, an interest which shares with the Government the power to levy and collect taxes upon the production and commerce of all the States entirely independent of national control. Cases of discrimination are mentioned in the memorial, showing that freight is carried for favored shippers at rates that are not given to the general public. The memorial states that these abuses have become so incorporated in the present system that they cannot be reached by ordinary methods of legislation. It advocates a trunk line of railroad between the grain-growing sections of the West and the Atlantic seaboard, as a regulator to the present system, that this may be built and owned by the Government and leased for the purposes of operation; or that the Government may aid a private company to construct such a road, provided that in consideration of such aid a supervision and control is assumed that will properly protect the public interest.

Mr. Hamilton, of Texas, introduced a bill, presumably in the interest of the Southern Pacific, as opposed to the Texas & Pacific interest. It provides that whenever Moses Taylor, William E. Dodge, John J. Cisco, Samuel Sloan, John L. Barnes, D. W. McWilliams, James P. Lloyd and Henry G. Marquand of New York; Thomas Allen and S. H. Laffin of Missouri, and W. J. Hutchins, A. Groesbeck, J. D. Giddings and others of Texas, or their successors, shall be created a body politic, under the style of the Central Texas & El Paso Railroad Company, or become owners of an existing charter, they shall be authorized to build and maintain a railroad from the western terminus of any railroad now completed in Texas at San Antonio, Austin or Waco to El Paso. They may bridge the Rio Grande at any point within 25 miles of that place. The bill also provides that if by that time no California company has built a road to within 150 miles of the Rio Grande, the gentlemen above named are empowered to build westward to meet the California road, and enjoy the Texas & Pacific Company's land grant for that portion of the line; but if the California company reaches the Rio Grande before they have constructed their road to a point 150 miles east of the river, the California company is to cross it and build eastward on the Texas & Pacific land grant to a junction.

#### Report of the Kansas House Committee on Railroads.

Mr. Speaker: Your Committee on Railroads, to whom was referred House bills No. 31, "An act relating to railroads, fixing the maximum rate for carrying freight and passengers in this State, prescribing the punishment for violation of its provisions, and providing for the appointment of railroad commissioners;" No. 67, "An act to provide for the proper regulation of railroads, and for the appointment of railroad commissioners;" and No. 341, "An act to provide for the establishment of a board of railroad commissioners," have had the same under consideration, and instruct me to report the said bills back to the House with the recommendation that they be rejected. The committee desire to state to the House some of the reasons which have influenced them in coming to their decision upon these bills.

The proposition to create a board of commissioners, with almost unlimited powers over the management, control and practical operation of the various railways of the State at a large expense, cannot be successfully defended, except upon the ground of a pressing necessity. While the committee recognize the fact that some means should be devised by which the people of the State shall be able to obtain correct information as to the management and operation of the different railways, and thus enable their representatives to legislate intelligently in the correction of abuses, if any shall be found, they are not prepared to make any recommendation which shall increase the public expenditure, unless the necessity be apparent and the abuses flagrant. Such a board as is proposed by these bills would be of little practical utility, unless the State should assume the management of its railways to the extent of regulating their rates for the transportation of passengers and freight.

The experience of States which have assumed such management, as gathered by the committee, has not been of a character to justify Kansas, in view of the comparatively feeble condition of its railway companies, and the already oppressive burden of taxation, to make a like experiment.

The proposition to fix arbitrary rates for the movement of the products of the State, the committee are entirely satisfied is impracticable; and at those portions of the State distant from competing points, or from the Missouri River, it would practically amount to an embargo upon any shipments of the products of the soil. It must be borne in mind that the great markets which control the prices of the productions of our State, are far outside its limits, and upon the Atlantic seaboard. All freight rates on cereals and cattle are fixed, not from the West eastwardly, but from New York, Boston, or some other eastern city, westwardly; and they are beyond the control, not only of the people of Kansas, but of our railways as well.

The railroad companies are quite as anxious to secure the wheat, corn and cattle of the State for shipment as are the people to ship them. This is evident for one or two reasons: First, Their own interest prompts them in that direction. Second, The rates already existing show it. For instance: Corn is carried from St. Louis to New York for fifty cents per hundred pounds; the rate from Kansas City and Topeka to New York is the same as from St. Louis; and because the great lines of railway, running to the East, desire to secure our large wheat and corn product, they give to the railways running westward from St. Louis a share of the earnings charged from St. Louis (which, however, yields little more than mere running expenses), in order that they may bring back such articles of necessary use and consumption as our people require. A *pro rata* or fixed rate would put such a tax upon the transportation of the corn of Kansas, as to render it almost valueless. Under existing rates, corn and wheat, one hundred miles distant from our eastern border, bear about the same rate of freight as that which is not more than ten miles distant. Under any proposition submitted to the committee, while the rates from points near the market would not differ materially from those charged now, at those more remote they would be so far advanced as to practically prevent shipment, and thus the products of the remoter portions of the State would be of little or no value.

Another popular complaint to which the committee have given much attention arises from the discrimination of railways in their rates between different points. These discriminations appear in every case to be in favor of points where competing lines come in contact. They arise from precisely the same cause which reduces prices in every branch of trade or industry, namely, competition. The committee have found no instance where complaint is made that the local rates are too high; but because they are higher at points where there is no competition than where it exists, the argument is advanced that the companies have no right to make such discriminations. While the committee have no intention of deciding upon the question whether railway companies have the right to charge more for transportation of

freight or merchandise from one point than from another, they are clearly of the opinion that fixed rates will not obviate the difficulty. The result would be that while the local rates would remain unchanged, the rates to and from competing points would be raised to the prices charged for local business. This has been fully demonstrated in the operation of the railway *pro rata* laws in the States of Iowa, Illinois and Wisconsin.

The committee believe it to be impolitic to place any restrictions or burdens on our railway enterprises that will discourage or impede their further development. Vast portions of our State are yet without the benefits which are furnished by railroad facilities. They cannot get their products to market because they have no means of transportation. Any legislation that shall embarrass or retard the further development of our railway system is to be deprecated. While wrongs and abuses exist in the management of railway companies, they are also found in every department of commerce, trade and industry. Those which are apparent and oppressive should be promptly remedied; further than this no interference should be permitted.

Your committee deem it but just to state that the authors of the bills were invited to and did submit their views in favor of their passage. The railroad companies of the State, through their officers, were permitted to submit arguments against said bills, and also furnish any information requested by your committee. The suggestions of all were taken into consideration, so that your committee might arrive at a proper conclusion in the premises.

Your committee have taken more time to examine into the subject-matter of these bills, perhaps, than was justifiable under ordinary circumstances, but the importance of the matters and interests involved required a full and fair examination, and we have discharged our duties as soon as possible, consistent with our duties in the House.

From the arguments herein submitted, and our examinations, we think the following conclusions correct:

1st. We deem it unwise at this time to provide for a board of railroad commissioners at salaries, with their clerk, amounting to at least \$11,500 per year, with incidental expenses, extra clerk hire, stationery, printing, and office rent, amounting at least to \$15,000 more.

2d. That any attempt to fix by law arbitrary rates for the transportation of freights, would result in no appreciable good, and only injury to the commercial and business interests of the State.

3d. The fixing of arbitrary rates, and their enforcement by law, would in effect be to prevent the removal of the wheat, corn and cattle of Kansas to the markets in the East—the freight rates increasing by distance from the Missouri River and the eastern border of the State, so as to greatly increase the costs of transportation above what our products can pay. But under rates as now charged, and enforced by business rules and the laws of trade and commerce, those points distant from the Missouri River and the eastern border of the State have an equal chance to secure nearly the same prices for their products as those within ten to twenty miles of the eastern points.

4th. The effect of the proposed legislation would be such that it would greatly cripple and embarrass the railroads now operating in this State, and defeat the building of new and needed lines that are so necessary in the newer portions of the State, where the demand for them is so great, and their building almost an absolute necessity.

Wherefore, your committee are unanimously of the opinion that the foregoing bills are unwise in their provisions, and if enacted into laws, would be detrimental to the interests of the people of the State.

(Signed)

G. W. GLICK, Chairman.  
CHAS. S. ALDRICH.  
S. B. FARWELL.  
J. H. SMITH.  
T. A. HUBBARD.  
D. H. PAGE.  
D. M. FROST.  
JAMES CHARLES.  
C. M. KELLCOG.  
D. G. CAMPBELL.

I am clearly of the opinion that the Legislature has the undoubted power to regulate and control by law the operation of railroad corporations existing under and by virtue of laws of the State, and that the State, through its Legislature, could regulate their rates for freight and tariffs. But I agree with the committee in its general conclusions that at this time it is not advisable to attempt such legislation, partly because it is so late in the session that it would be impossible to perfect any measure that would be even tolerable in its provisions, and partly because it is very questionable whether it would be possible at this time to frame a law that would be just in all its provisions. I believe railroads should be treated as private individuals—should be compelled to live up to their contracts, and to so operate and run their roads as to do justice to the public, and as a reciprocal duty the State owes to them its fostering care and protection.

With this explanation, I subscribe to the report of the committee.

JOSEPH H. TAYLOR, of the Committee.

I agree with the committee in their recommendation, but not with much of the argument. I believe the Legislature has full power to regulate the rates of fare and freights on all our public thoroughfares and "improved highways." I know all our railroads are making unjust discriminations to many local points. I believe the legislative power should be exercised to protect the people; but at this late day we have not the time to mature legislation that will be either just to the railroads or the people.

Respectfully, S. N. WOOD.

MR. SPEAKER: The undersigned, agreeing with most of the conclusions set forth by the majority of the Committee on Railroads, are of the opinion that the magnitude of the railroad interest in the State; the great lack of accurate information before the Legislature upon which to found wise and just laws; the great interest taken in the legislation of the country, State and national, by railroad corporations; the magnitude of the internal commerce of this country, and the almost unlimited power of the combined railroads of our country over the commercial life of a locality, town or city, alike demand the enactment of some law, similar in its provisions to that creating a railroad commission, now in operation in Massachusetts.

Respectfully, C. F. LITTLE,  
J. C. NICHOLS.

## General Railroad News.

### ELECTIONS AND APPOINTMENTS.

**Chicago, Burlington & Quincy.**—At the annual meeting in Chicago, Feb. 23, the following directors were chosen: John M. Forbes, Sidney Bartlett, John W. Brooks, Charles J. Paine, T. Jefferson Coolidge, Boston; Wm. J. Rotch, New Bedford, Mass.; John N. A. Griswold, Newport, R. I.; Peter Geddes, J. M. Walker, Robert Harris, Chicago; C. E. Perkins, Burlington, Ia. The new directors are Messrs. Coolidge, Geddes, Harris and Perkins, who replace John C. Green, Erastus Corning, Nathaniel Thayer, C. S. Colton, J. A. Clifford and John N. Denison. Mr. Coolidge was a candidate last year, but failed by a few votes. Mr. Harris is well known as the present General Superintendent of the road. Mr. Perkins was Superintendent

of the Burlington & Missouri River road when it was completed and afterward Vice-President. There are two directors less than last year.

**Gtman, Clinton & Springfield.**—Under the orders of the Court a special election was held in Springfield, Ill., Feb. 23, when the following directors were chosen: John Marsh, G. M. Butler, Lewis Campbell, W. H. North, E. H. Palmer, Thomas Snell, DeWitt County, Ill.; A. J. Alexander, E. Wenger, Iroquois County, Ill.; W. B. Holmes, Ford County, Ill.; C. W. Clark, Logan County, Ill.; John T. Stuart, Sangamon County, Ill. The board elected Thomas Snell, President; C. W. Clark, Vice-President; B. Butler, Secretary; L. Campbell, Treasurer; E. H. Palmer, Attorney. The Morgan Improvement Company's stock was excluded.

**Cincinnati & Baltimore.**—At the annual meeting in Cincinnati, Feb. 16, the following directors were chosen: W. T. McClintock, John King, Jr., W. W. Scarborough, Robert Garrett, John Donnell Smith, John Waddle, Kenner Garvard. The board elected W. T. McClintock, President; Charles F. Low, Secretary; W. E. Jones, Treasurer. The road is leased to the Marietta & Cincinnati.

**Cleveland, Mt. Vernon & Delaware.**—At the annual meeting in Mt. Vernon, O., Feb. 23, the following directors were chosen: Samuel Israel, Charles Cooper, Mt. Vernon, O.; M. White, Gambier, O.; Wm. M. Orr, Orrville, O.; Isaac Harpster, Millersburg, O.; D. W. Caldwell, Columbus, O.; Thomas D. Messler, Wm. Thaw, Pittsburgh, Pa.; George B. Roberts, Philadelphia. The board re-elected Thomas D. Messler President, J. S. Davis, Secretary and Treasurer.

**Mt. Pleasant & Broad Ford.**—At the annual meeting in Mt. Pleasant, Pa. Feb. 23, Charles Donnelly was chosen President, with the following directors: Daniel Shuper, Mendes Cohen, John King, Jr., Wm. Keyser, G. B. Rathfon, J. B. Washington, Charles Webb, Hugh Sisson, George B. Dennis, E. K. Hyndman, Wm. S. Bissell, Wm. Baldwin. The board elected M. W. McCullough, Secretary and Treasurer.

**Northern Central.**—At the annual meeting in Baltimore, Feb. 25, the old board was re-elected, as follows: M. B. Grensfelder, R. Oppenheimer, M. B. Sellers, S. M. Shoemaker, George Small, Baltimore; Wayne McVeagh, Harrisburg, Va.; H. P. Borie, J. C. Bullitt, S. M. Felton, J. N. Hutchinson, Wistar Morris, Thomas A. Scott, Philadelphia. The board re-elected Thomas A. Scott, President; A. J. Casant, Vice-President; Robert S. Hollins, Secretary. There were 68,324 shares voted on.

**Mt. Sterling Coal Railroad.**—The board of directors of this company, chosen at the annual meeting, Jan. 11, is as follows: J. J. Ward, H. E. Shawhan, J. W. Peck, C. W. West, Cynthia, Ky.; J. M. Bent, J. H. Easton, C. J. Glover, Mt. Sterling, Ky. Mr. C. J. Glover is President; Frank Fitch, Secretary.

**Baltimore & Ohio.**—The Baltimore City Council met in joint convention Feb. 23 and elected the following city directors in this company: J. J. Turner, John F. Wiley, Robert T. Banks, Charles E. Waters, Joseph B. Stafford, James Boyle and James A. Henderson.

**Parsons, Newton & Ellsworth.**—This company was recently organized at Topeka, Kan., by the election of R. W. Muse, President, and J. E. Duncan, Vice-President. The office is at Newton, Kansas.

**Michigan Central.**—The appointment is announced of Mr. H. D. Ledyard to be General Superintendent, with office in Detroit. The office of Assistant General Superintendent, vacated by Mr. Ledyard's promotion, will not be filled.

**Toledo, Wabash & Western.**—Mr. A. B. Southard has been appointed General Agent for Indiana, with headquarters at Indianapolis. Mr. Southard was recently Superintendent of the Detroit, Eel River & Illinois road.

**Flushing, North Shore & Central.**—Mr. A. B. Fiske will succeed Mr. I. D. Barton as General Superintendent of this road and the Southern of Long Island; he will probably be Superintendent of the Long Island Railroad also. Mr. Fiske has had 20 years' experience as Superintendent in Pennsylvania and was for four years General Superintendent of the Northern Central. For two years past he has been Manager of Atkins Brothers' iron works at Pottstown, Pa.

**Detroit, Lansing & Lake Michigan.**—Mr. George W. Watrous, late of the Fort Wayne, Muncie & Cincinnati, has been appointed Master Mechanic.

**Utah Southern.**—At the annual meeting in Salt Lake, Utah, Feb. 19, the following directors were chosen: Brigham Young, Jay Gould, Sidney Dillon, John Sharp, Feramors Little. At a subsequent meeting of the directors, officers were elected as follows: President, John Sharp; Vice-President, Brigham Young; Superintendent, John Sharp; Secretary, Hiram S. Young; Treasurer, L. S. Hills.

**Pittsfield & North Adams.**—At the annual meeting in Boston, Feb. 25, the following directors were chosen: Chester W. Chapin, W. W. Tucker, W. S. Bullard, F. H. Bradlee, Edward Jackson.

**Cincinnati & Martinsville.**—Mr. Joseph T. Greenough has been appointed Receiver on application of the creditors.

**Kingston & Pembroke.**—Mr. M. Gildersleeve has been re-elected President and J. Fraser Vice-President for the ensuing year.

**New Orleans & Texas.**—The bondholders of the Western Division, New Orleans, Mobile & Texas, organized this company in New York, Feb. 23, by electing the following directors: John P. Lafitte, L. P. Morton, Charles Moran, George Jones, Henry Morgan, Oliver Ames, 2d, Thomas N. Hunt, J. F. Terry, Wm. Mertens, Joseph Seligman.

**Western, of Alabama.**—Mr. H. M. Abbott, of Columbus, Ga., has been appointed Auditor in place of H. W. Crittenden, who has gone to the Alabama & Chattanooga.

**Delaware, Lackawanna and Western.**—At the annual meeting in New York, Feb. 22, the old board was re-elected, as follows: John Brislin, James Blair, Scranton, Pa.; John I. Blair, Blairtown, N. J.; A. L. Dennis, Newark, N. J.; Wm. Walter Phelps, Englewood, N. J.; George Bulkley, Southport, Conn.; Simeon B. Chittenden, Brooklyn, N. Y.; George Bliss, Wm. E. Dodge, Rufus R. Graves, Wilson G. Hunt, Marcellus Massey, Percy B. Pyne, Samuel Sloan, Moses Taylor, New York. The board re-elected Samuel Sloan, President; Andrew J. Odell, Secretary; Frederick H. Gibbens, Treasurer.

**Housatonic.**—At the annual meeting in Bridgeport, Conn. Feb. 25, the following directors were chosen: Wm. H. Barnum, Salisbury, Conn.; Andrew Mygatt, New Milford, Conn.; Wm. D. Bishop, Horace Nichols, Bridgeport, Conn.; David S. Draper, Samuel Willett, Charles P. Peck, Edward Leavitt, New York. The board re-elected Wm. H. Barnum, President; David S. Draper, Vice-President; H. W. Franklin, Superintendent.

### PERSONAL.

—Mr. D. E. Hervey, formerly Assistant Auditor of the Pittsburgh, Cincinnati & St. Louis, and lately of the Erie Railway, died in New York, Feb. 18.

—Mr. Thomas S. Ridgway, formerly President of the Springfield & Illinois Southeastern Company, and now State Treasurer, has announced himself as a candidate for the Republican nomination for Governor of Illinois.

—Mr. Jonah Woodruff, inventor of the Woodruff Sleeping Car, died recently in Hamilton, Bermuda, where he had gone for the benefit of his health.



—Mr. Adley Randall, who died in Buffalo, Feb. 23, was the first conductor on the old Lewiston & Niagara Falls Railroad, being appointed in 1839. On the opening of the Buffalo & Niagara Falls road he became conductor on that road and has run on the same line ever since, making him one of the oldest conductors in the country.

—Mr. Philip Heidelberg has resigned his position as one of the trustees of the Cincinnati Southern Railroad.

—Hon. Nelson J. Beach, who died at Beach's Bridge, N. Y., Feb. 23, aged 78 years, was formerly a well-known engineer. He was for some years Canal Commissioner of the State of New York, afterwards Canal Appraiser, was for two years Superintendent of the Hudson River Railroad and had charge for a time of the Rome & Ogdensburg road. For six years past he had lived a retired life upon his farm.

—Mr. Matthew G. Elliott, formerly for some years General Ticket Agent of the Vermont Central, died in Minneapolis, Minn., Feb. 23. For two or three years past he has been engaged in the flour-milling business at Minneapolis.

—Mr. T. B. Sergeant, formerly of the Detroit & Bay City, but now General Superintendent of the Detroit, Eel River & Illinois road, was married recently to Miss Mary A. Hale, of Boston.

—Mr. Edward Vernon, formerly General Passenger Agent of the St. Louis, Alton & Terre Haute, then the founder and editor of the Official Railway Guide and lately the editor and publisher of Vernon's Railroad Manual and Vice-President of the Arkansas Central Company, has been appointed Superintendent of the Freight Bureau of the St. Louis Merchants' Exchange, and has accepted the position.

—The Connecticut Republicans have nominated for Governor Mr. Henry C. Robinson, of Hartford, who is a director of the New York, New Haven & Hartford, and for Lieutenant-Governor Mr. Frederick J. Kingsbury, of Waterbury, who is a director of the New York & New England Company.

### THE SCRAP HEAP.

#### Railroad Manufactures.

A car coupler invented by W. V. Perry is now being tried on the New Bedford Railroad. It is not exactly self-coupling, but is so arranged that the brakeman can stand on the outside of the car and couple the cars, and thus avoid all danger of being jammed between the dead-wood. The pin, instead of dropping down through the draw-bar, slides down into a curved groove. A link is put into the head of one draw-bar and passes through the prongs of a fork. When a car is backed up to be coupled, the brakeman takes hold of a handle on the outside of the car, holds the link level, and as the cars come together it enters the draw-bar, pushes up the pin, passes under it, and the pin then drops back into its place, thus coupling the cars.

The Missouri Car & Foundry Company at East St. Louis is building a number of coal and freight cars for the St. Louis, Bloomfield & Louisville narrow-gauge road.

Mr. E. H. Bryant, Roadmaster of the New Bedford Railroad, has invented a new safety switch, which is now being tried on that road. But one rail is moved, leaving one rail of the main track always unbroken. Its operation is somewhat like that of the Tyler switch, but Mr. Bryant's guard is made of a steel rail, and is therefore he thinks, less likely to break than that of the Tyler switch.

The car works of Gilbert Bush & Co., at Troy, N. Y., are working full time and employing about 300 men. They have on hand contracts for 100 cars for a railroad in Chili; for a number of sleeping cars for the Wagner Company; for some sleeping cars for the New Orleans & Mobile road; for several passenger cars for the Delaware & Hudson Canal Company, and a number of cars for the New York Elevated Railroad.

The Brooks Locomotive Works will have an engine of 3 feet gauge in operation on the Centennial grounds.

Steel works are to be established at Kingston, Roane County, Tenn., and the necessary buildings are now being erected.

The Ohio Falls Car Works at Jeffersonville, Ind., recently turned out a number of cars built specially for the transportation of ice. They belong to the Eugene Ice Company, of Terre Haute, Ind.

The Adrian Car Company, of Adrian, Mich., has filed a petition in bankruptcy. The assets are stated at \$93,394 and the liabilities at \$160,982.

The Milwaukee Iron Company has chosen Mr. S. Warren Chase, Secretary.

It is said that a considerable part of the work of altering the Delaware, Lackawanna & Western Company's engines from broad to standard gauge will be given to outside shops; most probably to the Dickinson Company at Scranton and the Danforth Works at Paterson.

The Terre Haute (Ind.) Rolling Mill is full of work, with a number of orders ahead.

The Pennsylvania Steel Company's works at Baldwin, Pa., are running full double turn, and give employment to nearly 2,000 men in all.

The Cleveland Rolling Mill Company's works last year turned out 27,000 tons pig iron, 38,000 tons steel ingots, 48,000 tons iron and steel rails, 8,500 tons bar, plate and galvanized iron, and 8,900 tons spring steel, merchant steel, wire, etc.

The light rails for the Dayton & Southeastern narrow-gauge road are to be furnished by the Cambria Iron Works, of Johnstown, Pa.

The Harlan & Hollingsworth Company at Wilmington, Del., has several orders for passenger cars on hand and the shops are full of work.

The Red Mountain Furnace near Birmingham, Ala., has been made a coke furnace and will soon start up using coke made from Cahaba coal.

The Jackson & Sharp Company at Wilmington, Del., has some new orders on hand and is employing a considerable force.

The Hope Iron & Steel Bridge Company, recently organized, is putting up shops at Canton, O., for the manufacture of arch bridges on Nalleley's patent.

The Barney & Smith Manufacturing Company at Dayton, O., have received a large order for freight cars for the Central Pacific.

The Lake Erie Iron Company's mill at Cleveland, O., ran 315 days last year.

Porter, Bell & Co., at Pittsburgh, have recently received orders for two narrow-gauge engines to go to Indiana and four for New Orleans. These shops are quite busy, and will be so for some time.

Bowers, Dure & Co., at Wilmington, Del., are building some passenger cars for the New York & Philadelphia New Line, and also some street cars.

Mr. W. S. Brooks, of Joliet, Ill., has been chosen President of the Joliet Iron & Steel Company, in place of John G. Scott, resigned.

The Springfield (Ill.) Iron Company's rail mill has been turning out rails for the St. Louis, Kansas City & Northern and the Mobile & Ohio, and is also making a lot of 30-pound rails for the Wyandotte, Kansas City & Northwestern road.

#### A Heavy Week's Work.

The Pittsburgh Telegraph says: "The Edgar Thomson Steel Works, during the week ending Feb. 19, made 119 heats, producing 707 120-2240 tons of ingots, bloomed 709 1540-2240 tons of ingots, and rolled 560 1343-2240 tons of rails, of which twenty-five were of 30-foot lengths, for the Beaver bridge on the Fort Wayne Railroad. In accomplishing this extraordinary

work but eight vessel bottoms were used, giving an average of 14½ heats to each bottom and using but one cupola. The steel produced was of the best quality. This is believed to be the best week's work on record for single turn. No extra effort was made to effect this large production, and this can be taken as a fair indication of what these works are capable of doing."

A correspondent informs the same paper that the company is making some important improvements in the Bessemer plant which will not only reduce the cost of production, but also secure a more uniform and perfect metal.

#### A Conductor's Check Book.

Mr. H. J. Kremer, of Indiana, has obtained a patent on a book for use on railroads as a check to all peculations by conductors. The conductor's stub must correspond with the ticket he sells upon the train, and the return of both shows the company how many ride without having previously purchased tickets.

#### An Apprentices' Locomotive.

A locomotive is now being built in the Philadelphia & Reading Company's shops at Reading, Pa., which is to be sent to the Centennial, and all the work on which is done by the apprentices, a large number of whom are employed in the shops. It is a freight engine, with 18 by 22 inch cylinders, and is of the standard pattern in use by the company, except that it is to be of finer finish than the usual freight engine.

#### British Rail Exports in January.

The returns of the Board of Trade show total exports of railroad iron of all kinds, as follows in tons:

	1874.	1875.	Decrease.	P. c.
To the United States .....	60	.....	.....	.....
To all countries .....	23,580	36,171	12,591	54.8

The average value per ton was \$9 8s. in 1875 against \$10 12s. in 1874, the average value being 11 per cent. less.

#### An Old Railroad.

The Indianapolis Journal says: "Mr. George Lee, of Maryland, is visiting his son, Wm. Lee, of this city, for a few days. Mr. Lee is seventy-two years old, and without exception the oldest railroad engineer in this country. Mr. Gwin, who is credited by one of the railroad journals as being the oldest engineer, having taken the engine Mr. Lee first ran. Mr. Lee gives a very interesting account of his first railroad experience, which was on the Baltimore & Ohio road, in 1830. The first engine was built in York, forty miles from Baltimore. The engine weighed, with its tender, which was a boghead on wheels, 7½ tons, and was transported from York to Baltimore on a sled by twelve horses. The drivers were 38 inches in diameter. The whole affair was painted blue. On one occasion Mr. Lee made the run over the road, which was then forty miles in length, at the speed of twelve miles per hour, and was severely reprimanded by the president of the road."

### RAILROAD LAW.

#### Right to Refuse Freight Offered.

In a recent case the Court of Queen's Bench of the Province of Quebec has reversed the decision of the lower court and has awarded damages in a suit brought by a merchant to recover damages for the refusal of the Grand Trunk Company to carry cedar lumber offered as freight. The court held that to allow the respondents to discriminate either between the individuals for whom they would consent to carry goods, or as they have attempted to do here, between different descriptions of goods of the same class, would be to leave at the mercy of the company the fortune of every trader on the line of its railway. If the respondents could one day refuse to carry cedar lumber they might the next day refuse another description of goods, and thereby paralyze the business of any individual obliged to use their railway as a means of conveying his goods or produce."

If the company could refuse to carry certain merchandise it could equally refuse to carry certain persons, and no such interpretation of its charter could be allowed.

The decision agrees with previous ones of both English and American courts. The United States Supreme Court has decided that "a common carrier is bound to receive and carry all the goods offered for transportation, subject to all the responsibilities incident to his employment, and is liable to an action in case of refusal."

#### Kentucky Railroad Legislation.

Both houses of the Kentucky Legislature have passed a bill providing that the purchasers of any railroad sold at judicial sale shall become possessed of all the rights and privileges conferred by the original charter of such road.

#### Rhode Island Railroad Legislation.

A law recently passed by the Rhode Island Legislature and approved by the Governor provides that:

1. No new bridge erected over any railroad hereafter shall be less than 18 feet in the clear, from top of rail to lowest part of bridge.

2. A supply of good drinking water, with cups, must be kept in every passenger car while in use, under a penalty of \$25 for each offence.

3. Railroad companies must keep in each passenger car and always ready for use, a pail, an ax and an iron bar; nothing but candles or gas shall be used for lighting any such car.

4. Any person entering on or crossing a railroad track at any private way closed by gates or bars, and neglecting to close them, shall be fined not less than \$2 or more than \$10, and shall be liable for any damage resulting from such neglect.

5. Any person behaving in a disorderly manner, refusing to pay fare, or riding on the platform of a car, may be ejected at any regular station. No person shall be put out of the cars except at a station, under a penalty of \$100.

### TRAFFIC AND EARNINGS.

#### Coal Movement.

Coal tonnages are reported as follows for the week ending Feb. 19:

	1874.	1875.	Inc. or Dec.	P. c.
Anthracite .....	55,638	168,306	Dec. 112,668	66.9
Semi-bituminous, Broad Top .....	20,245	.....	.....	.....
and Clearfield .....	13,655	.....	.....	.....
Cumberland .....	3,525	.....	.....	.....
Bituminous, Barclay .....	27,016	.....	.....	.....
Western Pa. .....	11,921	.....	.....	.....
Coke, Western Pa. .....	.....	.....	.....	.....

The coal tonnage of the Pennsylvania Railroad for the month of January was:

	Tons.
Anthracite .....	32,850
Bituminous .....	221,641
Coke .....	62,782
Total .....	317,273

#### Passenger Rates to the Centennial.

A largely-attended meeting of general passenger agents was held at the Coates House in Kansas City, Mo., Feb. 23, to agree, if possible, upon a uniform rate of ticket and upon uniform rates for tickets from the Missouri River and other competing points to the Centennial Exhibition at Philadelphia. It was decided to make New York the objective point for all tickets. The matter of routes was discussed for four hours, and as

a last resort, a committee, consisting of Messrs. Penfield (Hannibal & St. Joseph), Ford (Atlantic & Pacific), Lord (St. Louis, Kansas City & Northern), Brown (Missouri, Kansas & Texas), and Dawes (Kansas City, St. Joseph & Council Bluffs), was appointed to prepare a chart of routes in accordance with the rules adopted. The committee will meet at the call of the chairman. No other chart will be issued.

#### Freight Rates.

At a meeting of agents of the trunk lines, held in New York recently, it was resolved to abolish all special contracts of every description with shippers from and after March 1. The resolution has been referred to the different companies for approval.

A meeting of representatives of the Southern railroad and steamship lines was held in New York Feb. 28 for the purpose of adjusting the classification of freight, but adjourned without taking final action.

#### Railroad Earnings.

The following figures are from the report of the Maine Railroad Commissioners for 1875 and include all those roads which have not been otherwise reported:

	Gross earnings.	Expenses.	Net earnings.	Per mile.	P. c.
Knox & Lincoln .....	\$149,029	\$77,417	\$71,612	\$3.041	61.96
Portland & Rochester .....	183,981	.....	.....	8.090	.....
St. Croix & Penobscot .....	65,112	35,369	19,743	2.505	64.18
Somerset .....	16,047	16,768	*721	892	104.49

#### \*Deficit.

The following gross earnings are from returns made to the Secretary of State of Iowa for the year ending Dec. 31, and includes those roads whose earnings are not otherwise reported:

	1875.	1874.	Inc. or Dec.	P. c.
Burlington & Southwestern .....	\$199,375	\$196,324	Inc.	\$3,351 10.5
Central of Iowa .....	734,780	642,700	Inc.	92,080 14.9
Davenport & St. Paul .....	173,856	185,313	Dec.	11,757 6.3
Des Moines & Ft. Dodge .....	163,484	108,831	Inc.	54,653 80.2
Des Moines & Minnesota .....	56,988	20,613	Inc.	36,775 173.6
Dubuque Southwestern .....	107,089	117,108	Dec.	10,039 8.6
Iowa Eastern .....	52,510	30,749	Inc.	1,761 5.7
Sioux City & Pacific .....	180,537	203,479	Dec.	16,942 8.3

Other earnings have been reported as follows:

	Year ending Sept. 30: 1874-75.	1873-74.	Inc. or Dec.	P. c.
Utica & Black River .....	\$503,397	\$485,451	Inc.	\$17,946 3.7
Expenses .....	261,661	240,866	Inc.	10,796 4.5

Net earnings .....	\$241,736	\$244,586	Inc.	\$2,850 2.9
Earnings per mile .....	3,472	3,734	Dec.	262 7.1
Per cent. of expenses .....	49.99	49.62	Inc.	0.37 0.7

Year ending Oct. 31:

Dorchester & Delaware .....	\$24,885	\$21,118	Inc.	\$3,767 17.9
Earnings per mile .....	743	630	Inc.	113 17.9

Year ending Dec. 31:

Chicago, Burlington & Quincy .....	\$11,791,361	\$11,846,318	Inc.	\$55,457 1.3
Expenses .....	6,480,129	6,513,812	Dec.	33,683 1.3

Net earnings .....	\$5,361,232	\$5,332,506	Inc.	\$28,726 4.5
Earnings per mile .....	9,339	9,213	Inc.	126 1.3
Per cent. of expenses .....	54.53	55.92	Dec.	1.40 2.6

Detroit & Milwaukee .....	\$902,647	\$1,151,307	Dec.	\$248,660 21.6
Expenses and taxes .....	868,451	944,472	Dec.	76,021 8.0

Net earnings .....	\$34,185	\$206,785	Dec.	\$172,542 83.5
Earnings per mile .....	4,776	6,091	Dec.	1,315 21.6
Per cent. of expenses .....	96.21	.....	Inc.	14.17 17.3

Intercolonial - New Brunswick & Nova Scotia Div. .....	\$861,593	\$898,430	Dec.	\$36,837 3.8
Expenses .....	850,775	1,301,850	Dec.	450,775 94.6

Net earnings, or deficit .....	\$10,818	\$408,120	.....	.....
Per cent. of expenses .....	98.74	145.68	Dec.	46.94

Intercolonial - St. Lawrence Div. .....	\$18,820	.....	.....	.....
Expenses .....	47,574	.....	.....	.....

Deficit .....	\$29,254	.....	.....	.....
Per cent. of expenses .....	259.60	.....	.....	.....

Oil Creek & Allegheny River .....	\$809,796	\$845,852	Dec.	\$37,056 4.4
Expenses .....	570,876	563,120	Inc.	7,756 1.6

Net earnings .....	\$238,920	\$284,732	Dec.	\$45,812 18.1
Earnings per mile .....	4,884	5,885	Dec.	1,001 20.4
Per cent. of expenses .....	70.50	66.38	Inc.	4.12 6.3

St. Louis, Iron Mt. & Southern .....	\$3,802,941	\$3,244,071	Dec.	\$558,870 17.3
Expenses .....	2,013,854	.....	.....	.....

Net Earnings .....	\$1,789,087	.....	.....	.....
Earnings per mile .....	5,552	4,743	Inc.	\$809 17.1
Per cent. of expenses .....	82.96	.....	.....	.....

Month of January: Cairo & St. Louis .....	\$21,691	1875.	.....	.....
International & Great Northern .....	141,386	\$122,575	Inc.	\$18,811 15.3
Philadelphia & Erie .....	231,193	.....	.....	.....
Expenses .....	180,842	.....	.....	.....

Net earnings .....	\$60,351	.....	.....	.....
Per cent. of expenses .....	65.24	.....	.....	.....
St. Paul & Sioux City .....	41,471	\$25,126	Inc.	\$16,345 79.3
Expenses .....	26,800	.....	.....	.....

Net earnings .....	\$12,871	.....	.....	.....
Per cent. of expenses .....	60.00	.....	.....	.....
Sioux City & St. Paul .....	27,716	\$10,755	Inc.	\$16,961 157.7
Expenses .....	\$20,641	.....	.....	.....

Net earnings .....	\$7,075	.....	.....	.....
Per cent. of expenses .....	74.50	.....	.....	.....

Third week in February: Chicago, Milwaukee & St. Paul .....	\$123,600	\$86,300	Inc.	\$37,300 42.5
Michigan Central .....	132,494	130,370	Inc.	12,124 10.1
Missouri, Kansas & Texas .....	64,853	46,986	Inc.	17,867 38.0
St. Louis, Kansas City & Northern .....	89,073	71,829	Inc.	17,244 24.0

Week ending Feb. 4: Great Western .....	\$16,438	\$14,779	Inc.	\$1,659 11.3
Week ending Feb. 5: Grand Trunk .....	\$36,300	\$24,500	Inc.	\$11,800 4.9

Net earnings .....	\$123,600	\$86,300	Inc.	\$37,300 42.5
Expenses .....	132,494	130,370	Inc.	12,124 10.1

Net earnings .....	\$64,853	46,986	Inc.	17,867 38.0
Expenses .....	89,073	71,829	Inc.	17,244 24.0

Net earnings .....	\$16,438	\$14,779	Inc.	\$1,659 11.3
Expenses .....	\$36,300	\$24,500	Inc.	\$11,800 4.9

Net earnings .....	\$123,600	\$86,300	Inc.	\$37,300 42.5
Expenses .....	132,494	130,370	Inc.	12,124 10.1





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## Editorial Announcements.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

## AMERICAN AND EUROPEAN LOCOMOTIVE ENGINEERING.

Last week we made some comments on the design of the tank engines built for the London, Brighton & South Coast Railway, which were illustrated in late numbers of *Engineering*. Some of these illustrations we have had reproduced in order to make the comparison between American and European practice more clear.

Figs. 1 and 2 represent the furnace door used by Mr. Stroudley in his engines. Fig. 1 is a section and fig. 2 a view looking at the back end of the engine. The arrangement consists really of two doors, the one A which opens inward and B which opens outward. B covers only the lower half of the fire hole, while A acts as a deflector plate and can be set at any angle by the lever C and notched section E. A is made of cast iron, and when full open occupies the position represented by the dotted lines at H, while B may be opened to the position represented at I. The arrangement seems to be an excellent one, although we are inclined to believe it would be better if the door B covered over a larger proportion of the fire hole, as the amount of air admitted would be excessive if one-half the fire hole were left uncovered. We have heretofore called attention to the advantages of deflector plates of this kind, which are now much used in Europe in various forms. They supply probably the most efficient means now known for improving the combustion, and have the great merit of simplicity and cheapness. We commend them to the consideration of master mechanics in this country.

Fig. 5 represents the method of fastening stay-bolts which we described last week. It will be seen that the bolt has a square head and a round shoulder underneath, and is screwed up hard against the crown-sheet, which is dished or set for a circle around the stay-bolt to give its head a fair bearing. The nut above the crown-sheet is screwed down hard against the latter, and the upper end is riveted over in the usual way on the outside of the fire-box shell. It will also be noticed that the stay-bolts are turned down between the two plates to the same diameter as the screws of the bottom of the threads. One reason given for this is, that it makes the bolts uniformly elastic through the whole length which is turned, whereas a screwed bolt will stretch most at the bottom of the threads

and very little elsewhere. This same principle is also recognized in the construction of the bolts for the main connecting-rods and in those in the eccentric-straps. The latter are represented in fig. 6. It will be seen from the dotted lines that these bolts have each a hole drilled from the head down to near the point to which the thread is cut. This hole is of the proper diameter, so that the section of the part of the bolt through which it is drilled is the same as that at the bottom of the screw, thus giving the bolt uniform elasticity through its whole length. To quote from *Engineering*:

"The eccentric-straps are of cast iron, and are made sufficiently strong to retain their circular form when the strain of the valve is upon them. The bolts are placed as closely as possible to the eccentrics, and are made very long, so as to obtain some elasticity. It is found that with these long bolts check nuts are unnecessary. The points of the straps at the joints are projected outwards to form cantilevers, and thus still further assist in stiffening the strap against distortion. The effect of the arrangement is that the wear of the eccentric-strap has almost entirely disappeared, and many straps are now running on the London, Brighton & South Coast line in express engines, that have been working constantly upwards of four years, and in goods engines for a still greater length of time; in fact, Mr. Stroudley informs us, that no cast-iron eccentric-strap has up to this time been let together on that railway. The surface between the strap and the eccentric sheave being so large in proportion to the load placed upon it enables a film of oil to remain between the two metals, keeping them entirely separate. The eccentric straps of some of the little six-coupled engines (generally known as the Terriers) on the South London line, show distinctly the turning tool marks on the inner wearing surfaces of the eccentric-straps, notwithstanding they have run upwards of 150,000 miles. We are of opinion that if the value of cast iron for eccentric-straps and sheaves was better known it would be more appreciated."

It sounds rather oddly, here, where cast iron is now and has for so long a time been used exclusively for eccentrics and straps, to hear its use commended, or, rather, recommended.

The coupling-rods are represented by figs. 3 and 4 and are thus described in *Engineering*:

"These rods are forged solid together with the oil cups, and are bored to receive plain cylindrical bushes of gun metal, each of which is retained in its place by the tapered pin which is forced down and retained in its position by a set screw pinched firmly down upon the top of it. The ends of these side rods are case-hardened, and the bushes are forced in by hydraulic pressure. The crank-pins are of iron, case-hardened, ground up to a true surface. Many of these pins have been working for upwards of four years, and the bushes are a good fit still. Mr. Stroudley places great value upon the case-hardening of crank-pins."

The driving boxes are shown by figs. 7 and 8. The feature of especial interest in their construction is the manner in which the brasses are fitted. These are made so as to have a bearing only 1 in. wide on the top, as shown in fig. 7. "The side flanges being planed tapered they are left free to rock to a slight extent, and can thus follow the inclination of the axle when the latter is thrown out of level by any irregularity of the road." With the ordinary method of fitting axle boxes and brasses, it is impossible for the bearing to adjust itself to the axle when the latter assumes an inclined position, as it often does when running on a rough road, so that the wheel on one side is on a depression and the other is on an elevation of the track.

The reversing gear, which is represented by figs. 9, 10, 11 and 12, will also be novel to most locomotive engineers in this country, although screw reversing gear has been used in Europe for a number of years past. The management of this part of Mr. Stroudley's engines consist of a three-threaded screw with 1½ in. pitch which operates a long brass nut between two guides, as shown in fig. 9. The screw works upon a button, shown on the left side of fig. 9, and is turned by a wheel and handle at the other end, also shown in fig. 9, but with a part of the wheel broken away. The reverse rod is connected to the nut on each side and with the arm of the reverse shaft at other end. On top of the nut is a stud which works in a slot in the upper guide. This stud is furnished with a screw and what is called a locking handle, with which it is clamped in any position in order to take the strain off the screw-threads when the engine is working. It is, perhaps, true that reversing gear of this kind cannot be operated as quickly as an ordinary reverse lever, but the difference is not as great as is usually supposed. With the screw illustrated in the engraving, the nut to which the reverse rod is attached can be moved through its travel by seven revolutions of the wheel. Such gear has the very great advantage of being able to regulate the position of the cut-off with the greatest exactness.

A very curious provision is made in these engines for equalizing the admission of steam into the cylinder. This is perhaps best explained in the language of *Engineering*:

"The centre of the valve face is placed somewhat forward of the centre of the length of the cylinder, so that the combined capacity of the ports and cylinder up to the point of cut-off in ordinary working gear is the same for both the forward and backward stroke. Thus, in the engine under notice, the centre of the valve face is 1½ in. in front of the centre of the cylinder, thus adding 1½ in. to the length of the back parts, the capacity of this length of front being just sufficient to compensate for the difference in the position of the piston at the ordinary point of cut-off during the backward and forward strokes due to the angularity of the connecting-rod. This arrangement gives a very even 'beat,' and is adopted by Mr. Stroudley on all his engines."

While there is much to commend in the design of these engines, there are also many features that it would be very difficult to have adopted in this country. Chief of these are the inside cylinders and crank axles. That method of construction is entirely obsolete in this country. The

rigid wheel base is also a feature which, as we have already pointed out, would make the engines unsuitable for American roads. Plate frames have gone quite out of use here, but for engines of the class illustrated, this form of construction has some decided advantages for the back end of the frame, or that portion along the sides of the fire-box, as it enables the latter to be made considerably wider than is possible when a "solid" frame is used throughout. Whatever conclusions may be drawn from an examination of the design of these engines, we believe it is true that American locomotive engineers and master mechanics would derive very great advantage from carefully studying the design, especially in the details, of European locomotives. At present a general stagnation seems to prevail among our master mechanics. The only change seems to be in some of the minor details of locomotives, and with the exception of the new pattern of Consolidation engines for the Pennsylvania Railroad, there has been no attempt at improvement in the general design for years past. The use of the Allen valve, the Walschaert valve gear and of furnace-door deflectors, now so generally used in Europe, is almost unknown here, and the ignorance of many master mechanics of such subjects as these, about which they should be thoroughly informed, is often pitiable. Many of them do not even know the names of books with the contents of which they should be as familiar as with their daily duties, and of the great wealth of knowledge which is supplied weekly in the current European technical literature they are as profoundly oblivious as though no such thing existed.

There are of course some marked exceptions to this, and occasionally a man occupying a responsible position can be found who is a student as well as a practical man.

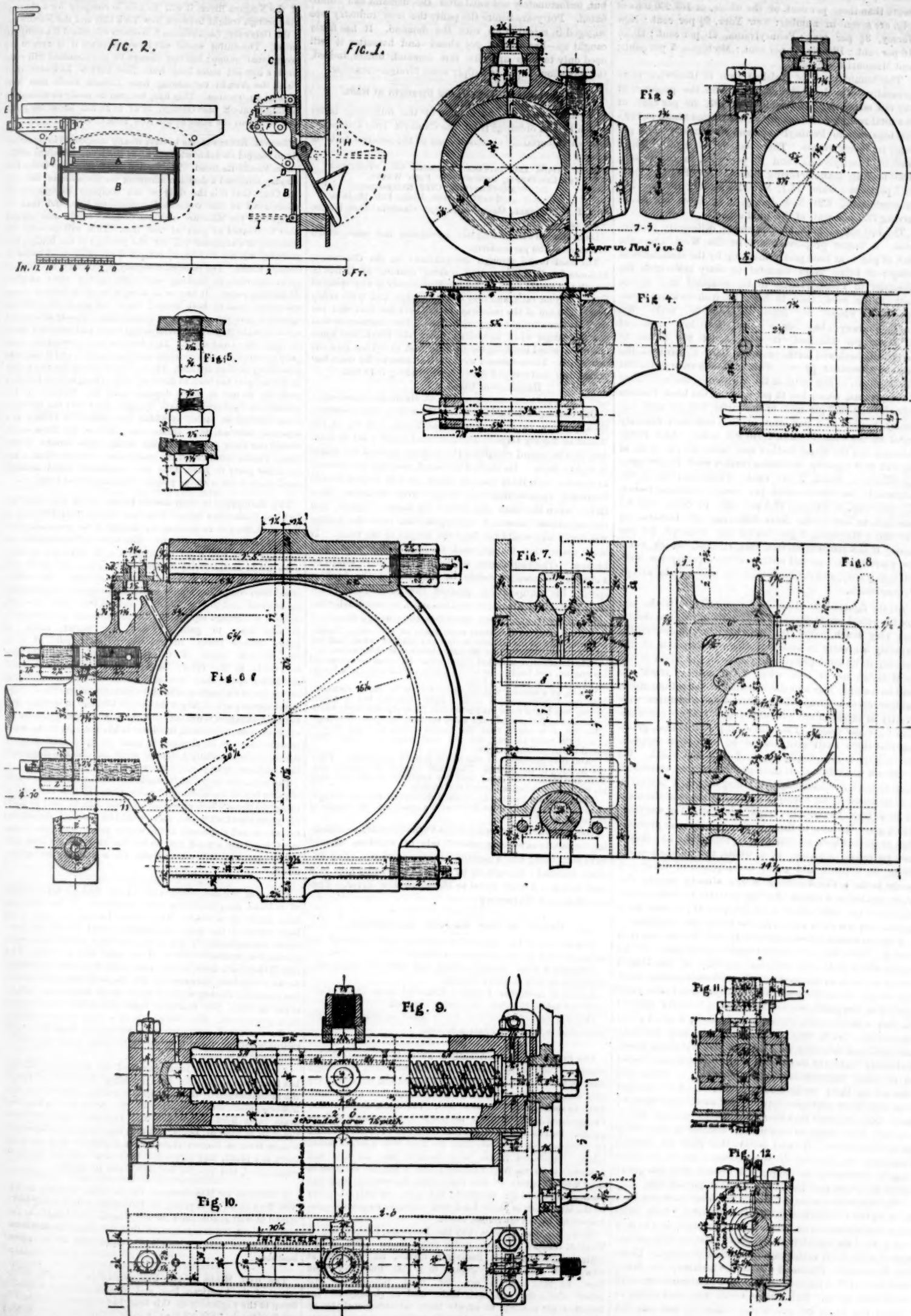
The cause of the condition of things we have described is difficult to point out, but that it does exist we think is indicated by the almost Chinese uniformity of design which American locomotives have assumed. It is hopeless to expect much change in this respect until a knowledge of the science, as well as of the practical details of his profession, shall be regarded as a qualification for holding the responsible positions which many now hold apparently with none of the first and little of the last.

## AMERICAN IRON PRODUCTION.

Aside from the importance of iron manufactures as producers of the chief raw material for the construction of railroads, they have a special importance as supplying the latter with a large amount of traffic. The iron manufactured in this country forms a tonnage exceeded by but a few other products transported, and probably the materials of which the iron is made are three times as heavy as the product. Usually either the coal or the ore has to be carried some distance to the blast furnace, and frequently both, and a great deal of this carriage is by rail. These raw materials usually do not move very great distances by rail, it is true; but the manufactured iron does. The movement of the latter does not depend so much on the amount of domestic production; but the traffic in raw materials does so almost wholly. There are now several railroads in this country whose chief traffic is iron ore or coal going to blast furnaces. Two lines in the Upper Peninsula of Michigan have hardly any other reason for existing than the transport of Lake Superior ore; and in the vicinity of Cleveland and Pittsburgh several roads which have a considerable miscellaneous traffic yet can hardly be prosperous without activity in the iron works. The roads thus dependent on iron traffic are chiefly those in a few iron manufacturing centers. The chief of these are the anthracite districts of Eastern Pennsylvania, where the great railroad business is coal carrying, and the iron business has relatively less importance, though the greatest in the country; the bituminous coal districts about Pittsburgh, the Mahoning district in Northeastern Ohio; the Hanging Rock district in Southeastern Ohio and Eastern Kentucky; the block coal district in Central Indiana from Indianapolis to Terre Haute, where manufacturing has not yet made much progress; the St. Louis district, both in Missouri and in Illinois, opposite, and the vicinity. There are most promising fields for manufacturing iron in West Virginia and in Alabama; but the business has not yet made such progress there as to furnish much work to carriers. A great business in ore, with some manufacturing, is carried on in the Lake Superior country; and there is something like a manufacturing center at Chicago, distant from ore and not very near coal, but with excellent means of getting both cheaply.

By the returns made to the American Iron and Steel Association for 1875, compiled by Mr. James M. Swank, its Secretary, and just published, we are able to see where the iron manufactures are. These show that in the entire country at the close of 1875 there were 713 blast furnaces with capacity for an aggregate production of 5,439,230 net tons of pig iron. Pennsylvania had 41 per cent. of this capacity; the States further east 14½ per cent.; the States west of Pennsylvania and north of the Ohio River, 32½ per cent.; the Southern States, beginning with Maryland (which more properly belongs with the Middle





Details of TANK LOCOMOTIVE for the London, Brighton & South Coast Railway.



States), 12 per cent. The States having a capacity for more than three per cent. of the whole, or 163,200 tons of pig, are seven in number: New York, 9½ per cent.; New Jersey, 3½ per cent.; Pennsylvania, 41 per cent.; Ohio, 16 per cent.; Illinois, 3½ per cent.; Michigan, 5 per cent.; and Missouri 4 per cent.

The manufacture of finished iron is somewhat more generally diffused, as it depends less on the presence of the raw materials. At the close of 1875 58 per cent. of the total rolling mill capacity of the United States (4,189,760 tons) was in Pennsylvania and further east—38.7 per cent. in Pennsylvania. There was 32 per cent. in States west of Pennsylvania, and 10 per cent. in the South. The leading manufacturing States were Pennsylvania, 38.7 per cent.; Ohio, 15.1; New York, 8.6; Illinois, 7.7; Massachusetts, 4.2; New Jersey, 3.4; these six States having 77.7 per cent. of the total capacity.

The rail rolling mills are somewhat differently distributed. A larger proportion are in the West, where the lack of pig is at least partly made up by the abundance of scrap; it being more wasteful to carry rails from the Missouri to Pennsylvania to be re-rolled and thence back to be used, than to buy the iron new in Pennsylvania, where at least it has to make the long journey but once. At the low rate of 40 cents per hundred, it would cost \$16 a ton to carry rails back and forth, or more than a third of the present Cleveland price. This is reason enough for the rapid growth of rail mills in the West since the war. Thus Pennsylvania, which has 41 per cent. of the blast furnace capacity and 38.7 per cent. of the entire rolling mill capacity, has but 35.3 per cent. of the rail mill capacity (total for the United States, 1,940,300 tons). And Pennsylvania and the States further east have 50 per cent. of the rail mill capacity, the States further west, 43 per cent.; the Southern States, 7 per cent. Three-quarters of the whole is in four States—35.3 per cent. in Pennsylvania; 15.7 per cent. in Illinois; 15.6 per cent. in Ohio, and 8.7 per cent. in New York. Next following are Indiana, 3½ per cent.; Maryland, 3 per cent.; and Missouri, 2.6 per cent. It is a remarkable fact that Illinois, which but a few years ago had no rail mill, now has capacity for 305,000 tons yearly, and for more than any other State except Pennsylvania.

All the figures here given are for capacity of works and not for actual production. The latter last year was doubtless very much below the capacity; but, moreover, the capacity is greatly in excess of the consumption of the country in its most prosperous years—in the years of the most lavish use of iron, when 7,300 miles of track was laid in a single year and the manufacture of rolling stock, bridges, and a great many other iron structures were greatly in excess of any probable actual average consumption for many years. This makes it probable that, granting that there shall continue to be no foreign supplies, the country is abundantly supplied with iron works. We could not possibly use all their product if they should all keep at work continuously. We may expect a revival in iron industries, but hardly a revival in the establishment of new iron works. For eight years after the war there was a great increase in these works, and it seems probable that there has been an over-supply, something like that of new railroads. Carriers as a whole, then, cannot safely count on a great and rapid development of their iron works traffic. The American works already supply the home market, and unless they can contrive to manufacture for export (of which there is no prospect at present) their production can grow only with the home consumption.

It by no means follows that there will be no new iron works. Doubtless no inconsiderable proportion of the works which go to swell the total capacity of the United States are such as can never produce advantageously when the margin for profit is narrow. During the three years preceding the panic, almost any works, however inferior in plan or unfavorably situated, could make a good profit on its iron. Now, only those wisely planned, skillfully managed and favorably situated can avoid serious losses. Evidently there will be survival of the fittest in iron works as in other organizations and industries. Those not adapted to their environment must fail. Now, the fact that there is an aggregate capacity for more iron than we need does not prove that there are works enough able to produce economically to supply the demand in reasonably prosperous times. We may believe that there are enough to supply the demand of these times; for we see them eagerly contending to supply all orders they can get at prices so low as practically to exclude imported iron.

We believe that since the panic the Western works have been on the average busier than the Eastern, which indicates that they have an advantage at present; and as it is that part of the country which grows fastest, this advantage will be likely to increase rather than decrease. Then, too, there are new mineral districts which may be developed hereafter in spite of an excessive productive capacity in existing works. Still, these works will tend rather to change the place of production than to increase the quantity. Until recently there was a large importation of iron and there was room for a considerable increase in American works before they could satisfy the home con-

sumption. This increase was very rapidly made, however, but, unfortunately not until after the demand had culminated. For years before the panic the iron industry was engaged in catching up with the demand. It has fairly caught up—has, indeed, got ahead—and hereafter it will need only to keep up with this demand, unless, indeed, the way should open to supply some foreign countries.

#### An Accidental Test of the Strength of Rails.

A gentleman sends us a copy of the following letter which he had obtained from the Cambria Iron Company, and which certainly chronicles one of the severest tests on record:

GRAND RAPIDS AND INDIANA RAILROAD CO., OPERATING THE CINCINNATI, RICHMOND & FORT WAYNE, AND TRAVERSE CITY RAILROADS, GRAND RAPIDS, Mich., Feb. 18, 1876.

HON. D. J. MORRELL, General Manager Cambria Iron Works, Johnstown, Pa.:

DEAR SIR: We had a singular occurrence last week, which will interest you particularly.

The flood broke through embankment on the Cincinnati, Richmond & Fort Wayne road, making opening of 12 feet in length and nearly same in depth. Fortunately it was spanned by two of your rails, and they carried engine and train safely over. The top of the rails was cracked, but the foot was perfect. It was a freight engine, 30 tons. The engineman first saw the danger when immediately over the break, had sense enough to avoid touching the throttle, and so did not give any new shock. The conductor went back as soon as the train had passed over, and stepped the distance, making it 12 feet.

Hastily, your friend,

W. O. HUGHART, President.

Our correspondent, in sending the letter, calls attention to a passage in Jules Verne's amusing "Tour of the World in Eighty Days." The hero had made a bet in London that he would complete the journey around the world in eighty days. He started eastward, and was on the way to Omaha, with little time to spare, on the Union Pacific Railroad, approaching the bridge over Medicine Bow River, when the train was halted by danger signals and the signalman informed the engineman that the bridge was shaky and would not bear the weight of the train. It was a suspension bridge, and several of the wires had broken. The engineman suggested that there would be a chance of crossing safely by running at the highest speed; his proposition pleased the passengers (with their proverbial American recklessness), it was finally decided to try it; and Verne describes the passage thus:

"The passengers took their seats again in the cars. Passport resumed his without saying anything of what had occurred. The players were entirely absorbed in their game. The locomotive whistled vigorously. The engineer reversed his engine, and backed for about a mile: returned like a jumper who is going to take a leap. Then, at a second whistle, they began to move forward. The speed increased; it soon became fearful; but a single puffing was heard from the locomotive; the pistons made twenty strokes to the second; the axles smoked in their bearings. They felt, so to speak, that the entire train, moving at the rate of 100 miles an hour, did not bear upon the rails. The speed destroyed the weight."

"And they crossed! It was like a flash of lightning. They saw nothing of the bridge. The train leaped, we might say, from one bank to the other, and the engineer could not stop his train for five miles beyond the station."

"But the train had hardly crossed the river when the bridge, already about to fall, went down with a crash into the rapids of Medicine Bow."

[It is remarkable that what Jules Verne intended as a striking anecdote in an exaggerated tale of wonders, should have something like a parallel in this experience of an Indiana railroad; though, to be sure, a twelve-foot gap in a road-bed is not quite equal to Medicine Bow River.—EDITOR RAILROAD GAZETTE.]

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* has information of the laying of track on new railroads as follows:

Columbia & Port Deposit.—Track laid from Columbia, Pa., southeast to Safe Harbor, 10 miles.

Pueblo & Arkansas Valley.—Extended from Chico, Col., west to Pueblo, 12 miles, completing the road.

This is a total of 22 miles of new railroad, making 294 miles completed in the United States in 1876.

THE SIX-FEET GAUGE evidently is about to disappear in this country. Only three considerable railroads have this gauge now, and two, the Atlantic & Great Western and the Erie, have long announced their desire to change, and their intention to do so as soon as means could be had. The third, the Delaware, Lackawanna & Western, was supposed to be satisfied with its gauge. Its business is chiefly coal traffic, and it feels the need of interchanging cars less than do lines with a larger mixed traffic. Doubtless it has been thought that the Erie and Atlantic & Great Western might find a market for some of their 6-foot engines on this road after the former lines had been changed to the standard; but now, evidently, they will be the last roads of their kind, and will have no possible customers for their wide rolling stock.

There are two reasons why the Delaware, Lackawanna & Western should at last make this change. One is the better opportunity for finding a market for its coal at New York and points distant from its line and from New England points not far from tide-water. The latter especially, can get their coal so cheaply by sea that it is not possible to supply them advantageously by an all-rail route without eliminating all unnecessary expenses from the latter, among which must be reckoned the transfer from car to car. Another is the approaching completion of the

Rome, Watertown & Ogdensburg's Lake Ontario Shore road. When this has made a connection with the Canada roads west of the Niagara River, it will be able to compete for a share of the through freight between New York City and the Northwest. If the Delaware, Lackawanna & Western will afford it a southern outlet. The outlet would not be worth much if it were of an exceptional gauge; but the change to the standard will complete a line 473 miles long from New York to Lewiston, over which the freight car coming from Canada roads may pass without obstruction. This line, too, can be easily shortened by making a cut-off past Oswego, so as to be but about 440 miles long, or about the same as the New York Central.

COUNCIL BLUFFS seems to have finally conquered in its struggle to compel its acknowledgment as the legal terminus of the Union Pacific Railroad. The United States Supreme Court last Monday rendered a decision affirming the decision of the Circuit Court that it is the duty of the company to operate its whole road as one connected continuous line, and that its bridge over the Missouri between Council Bluffs and Omaha must be treated as part of that line. This will prevent the charging of a separate toll for the passage of the bridge, but probably will not necessarily compel the making up of trains in Council Bluffs. The railroad company, apparently, has no very great interest in making one town rather than another its starting point. It has, or at least it used to have, a large amount of land in both towns; but a few years ago Omaha agreed to give the company a considerable subsidy if it would agree to make its permanent terminus there, and maintain there its chief offices and shops. This decision may prevent the company's performing this contract in all particulars, and it may lose something on that account. The contest between the two towns on this subject has been as fierce as a war, though their fortunes probably do not so much depend upon the decision of the question as their citizens have thought. Evidently the arrangement recently in force, by which the bridge is worked as a separate railroad, is a clumsy one. Either the Iowa roads should run their trains over the bridge into Omaha or the Union Pacific should start its trains from Council Bluffs; but for either party to have done this voluntarily would have almost made a war with the people of the aggrieved town.

THE REDUCTION IN EAST-BOUND RATES which went into effect last Wednesday brings down the charge from Chicago to New York from 45 to 40 cents per hundred for grain and from 50 to 45 on fourth-class freight. The rates to Philadelphia and Baltimore are continued in proportion to mileage, as they were made last December, and Boston rates are made five cents more than New York rates, as heretofore. The differences from competing points south of Chicago are, presumably, maintained; and the movement is not, as has been reported, in favor of Chicago especially. Indeed, Chicago is more likely to lose than to gain by very low winter rates. If grain moves freely in winter, a large part of it is sure to pass south of Chicago, unless discriminations are made in its favor; but if the grain is held until navigation opens, then most of it (with ordinary late rates) is sure to go to Chicago or other lake ports for shipment. Chicago merchants are apt to forget that while Chicago in summer may have the cheapest route between the Atlantic and points as far south even as Springfield, in winter it has not; or, if the route is made cheapest in charges, it must be done artificially by the railroads accepting a smaller profit on Chicago shipments than on those from points further south.

The reduction is probably made to secure a freer movement of grain before the opening of navigation. If lake rates something like those which prevailed last year can be had by holding grain about six weeks, there would be a strong disposition to make no rail shipments at the winter rates. Still, the movement has been a good one so far this year—larger than ever before except in 1874, when there was a pressing foreign demand.

KANSAS is the last State in the Union that should complain of railroad discriminations and extortions. It has virtually been made by railroads. They alone have given value to its land, attracted the large immigration that has of late years made it comparatively populous, and they alone have made production profitable there. They need not be thanked for that if they have made good returns to their owners meanwhile. So far is this from the case that not one of the many companies has been able to keep up the interest on its bonds, and but one is paying now. The railroads make absolutely no return to their proprietors. That the people of a State should complain of the conduct of capitalists who are giving them the use of railroads costing many millions for nothing, seems incredible. Still, some have done so.

A committee of the lower house of the Kansas Legislature has lately had to consider bills providing for the restriction of the rates charged by the railroad companies. This committee, however, made some inquiries into the facts, and finding that grain rates from Kansas City and Topeka to New York were the same as from St. Louis, and that this enormous discrimination in favor of Kansas alone makes it possible to grow grain there at a profit, they concluded that they had not much to complain of, and that the law should not be passed.

A MEETING OF MANAGERS OF TRUNK LINES is being held in New York as we go to press, the Baltimore & Ohio being represented as well as the lines further North. No results are reported as yet, but it is supposed that the object of this meeting is to agree upon a schedule of freight rates for the spring business.

THE RAIL MILLS OF THE UNITED STATES, according to the report of the American Iron and Steel Association, corrected down to the beginning of this year, have capacity sufficient to produce yearly 1,940,300 tons of rails. This amount in rails of the commonest (and near the average) weight of 56 lbs. per yard would be sufficient to lay 19,500 miles of track. The mile-



age of railroad in the country is now something more than 74,000; the mileage of track probably not 90,000. At the latter estimate, the rolling mills of the country can produce rails enough to renew all this track every 4½ years, provided none is required for new construction. If 3,000 miles of new track should be constructed yearly, there would be productive capacity remaining sufficient to renew 16,500 miles yearly, or a total renewal in 5½ years.

THE TEXAS & PACIFIC RAILWAY BILL has apparently come to an end for this session of Congress. A telegram, Wednesday, reports that it was that day indefinitely postponed by vote of the House Committee on Pacific Railroads, to which it had been referred. This vote also included the Southern Pacific bill. It is not safe to conclude that the vote of the committee represented the convictions of the House, or even of the committee itself. If the bill had passed by a vote of either party, the other would inevitably have made use of it in the coming Presidential campaign with considerable effect. It was a question likely to divide parties already much distracted, and doubtless the party managers concluded that it would be safer not to have it come up for discussion, which this indefinite postponement will prevent.

CHEAP RATES are remarked upon in the report of the Kansas House Railroad Committee's report on a proposed law restricting rates. This report states that the rate on corn from Topeka to New York is 50 cents per hundred, which is also the St. Louis rate. The shortest route from Topeka to New York is 1,405 miles, and the rate per ton per mile by this route is thus 0.712 cent; but a route by which a considerable part of this traffic moves is 1,493 miles long, and the average rate is thus 0.663 cent per ton per mile.

## General Railroad News.

### OLD AND NEW ROADS.

#### Detroit & Milwaukee.

The *Detroit Tribune* of recent date says: "Messrs. G. V. N. Lathrop and George Jerome filed, Saturday afternoon, the answer of the Detroit & Milwaukee Railroad Company to the first mortgage foreclosure suit instituted in the Wayne Circuit Court several months since by Hon. J. H. Owen. The answer does not deny any of the main allegations of the petition, but it seeks to show that a sale of the property included in the mortgage referred to can be had, subject to the prior liens of the mortgages made by the Detroit & Pontiac Railroad Company, without prejudicing the rights of any party concerned."

Receiver Trowbridge reports for January as follows:

On hand Jan. 1.....	\$30,623 08
Received from passenger and freight traffic.....	61,030 89
"    "    other sources.....	1,408 40
Total.....	\$102,062 34
Disbursements for the month.....	62,310 04
Balance to February.....	\$39,752 30

The receipts were \$129.25 in excess of the disbursements.

#### Parsons, Newton & Ellsworth.

This company was organized at a meeting held in Topeka, Kan., Feb. 24. The capital stock is to be \$5,000,000. The line is from Parsons, Kan., on the Missouri, Kansas & Texas, west and north to the Kansas Pacific at Ellsworth, about 200 miles, crossing the Atchison, Topeka & Santa Fe at Newton.

#### Indianapolis, Bloomington & Western.

Receiver Wright announces his inability to pay a further dividend on the back pay-rolls until April 1. Although the earnings of the road for some time past have been large, all surplus above current expenses will be needed to pay receiver's certificates falling due March 15.

The Receiver has contracted for 300 tons of steel rails, to be delivered in March. They are for use in renewals of track.

#### Illinois Railroad Taxation.

The cases of the Chicago & Alton, the Chicago, Burlington & Quincy and the Toledo, Peoria & Warsaw companies, to enforce the collection of the tax on capital stock levied under the law of Illinois, came up this week in the United States Supreme Court, on appeal from the Circuit, and arguments were heard. The essential point is the same in all the cases and they will probably be decided together.

#### Northern Central.

At the annual meeting in Baltimore, Feb. 25, it was voted to approve the issue of \$5,000,000 in 5 per cent. bonds under the second general mortgage; to authorize the exchange of \$3,000,000 of such bonds for the same amount of the income bonds of 1872, and to issue \$1,000,000 convertible bonds under the same mortgage in exchange for the income bonds of 1870.

There was some discussion as to instructing the board to make a 3½ per cent. dividend, but the motion was finally withdrawn.

#### Columbia & Port Deposit.

Track has been laid from Columbia, Pa., southeast down the Susquehanna to Safe Harbor at the mouth of Conestoga, a distance of 10 miles. Regular trains will be put on before long.

#### Maine General Railroad Law.

The general law providing for the organization of railroad companies has passed both houses of the Maine Legislature and has been signed by the Governor. The bill permits the organization of a railroad company by any number of persons not less than 10, a majority of whom must be residents of the State. It prescribes rules for the organization of companies, location of roads, condemnation of lands and other necessary proceedings. The Railroad Commissioners are to have a general supervision over such proceedings.

#### The Central Vermont and Rutland Settlement.

The stockholders of both companies held special meetings in Bellows Falls, Vt., Feb. 25, and voted to ratify the agreement for a settlement of the differences between the two companies, a full summary of which was given last week. The agreement will now be carried into effect, unless the Vermont & Canada Company should take some action to prevent it.

#### Rockford, Rock Island & St. Louis.

A survey has been begun of the proposed extension from Sterling, Ill., northeast to Rockford by way of Polo.

#### Mt. Sterling Coal Road.

This road is now being built by a construction company composed of the leading stockholders. The company expects to have 15 miles of road completed and ironed by April 1, and 18 miles in operation by July 1. The road is of 3-foot gauge and is laid with strap-iron ½x2½ inches on 7x9 inch oak stringers.

The completion of 18 miles of road will tap a vein three feet thick of a good quality of coal, also a region of fine timber, such as white oak, yellow pine, etc. Mt. Sterling, the starting point of the road, is the present terminus of the Lexington & Big Sandy road, now operated by the Louisville, Cincinnati & Lexington.

#### Paris & Danville.

The demurrer to the application for a mandamus to enforce the delivery to the company of the bonds voted to the road by the town of Danville, Ill., has been sustained by the Circuit Court. The Court holds that the company did not comply with the conditions of the vote granting aid.

#### Fiabkill & Newburg Railroad & Bridge Company.

A company by this name has been organized at Newburg, N. Y., for the purpose of building a bridge over the Hudson River from Storm King to Breakneck Mountain, with a railroad connection to Newburg. The incorporators are chiefly residents of that city.

#### Lake Champlain and St. Lawrence Junction.

The completed section of this road from the Grand Trunk crossing at St. Hyacinthe, P. Q., south by east to St. Pie, 10 miles, was formally opened for traffic Feb. 23. The road, when completed, will extend from Yamaska on Lake St. Peter, southward to Phillipsburg on Lake Champlain, most of the way through the valley of the Yamaska River, and will be about 100 miles long. It is of 3 feet 6 inches gauge, and was formerly known as the Phillipsburg, Farnham & Yamaska.

#### Atchison, Topeka & Santa Fe.

The track of the extension westward, known as the Pueblo & Arkansas Valley road, was completed to Pueblo, Col., on the evening of Feb. 26. Pueblo, which is to be the terminus, is 12 miles beyond Chico, the last point noted, 83 miles from West Las Animas, and 619 miles from the Missouri River terminus at Atchison. The completion of this extension will enable the company to command a great part of the traffic of Southern Colorado, and, doubtless, to secure a good share of the New Mexican business which will come to the Denver & Rio Grande with the completion of its Trinidad Extension, though that company will probably prefer to carry the business through to Denver, getting thereby 120 miles longer haul upon it. The Atchison, Topeka & Santa Fe, however, will be the shortest line east from everywhere south of Pueblo by just about that 120 miles. The distance from Pueblo to Kansas City is 635 miles; Denver to Kansas City, by Kansas Pacific, 639 miles.

The company's lines are now as follows: Atchison to Pueblo, 619 miles; Kansas City to Topeka, 66 miles; Newton to Wichita, 27 miles; total, 712 miles.

#### New Orleans, Mobile & Texas.

At an adjourned meeting of the bondholders of the Western Division a plan for the organization of the New Orleans & Texas Railroad Company was finally adopted. The capital stock was fixed at \$2,000,000, with power to increase to \$4,000,000. The corporate existence of the company is to begin whenever bondholders to the amount of \$1,250,000 shall have subscribed to the stock of the new company.

#### Fitchburg.

Work is now in progress on the new line for the Vermont & Massachusetts Division, which is to avoid the present detour and the reverse at South Ashburnham. The work is to be pushed as fast as possible.

#### Portland & Ogdensburg.

The Portland City Council has ordered the City Treasurer to pay the March coupons on the city bonds issued in aid of this road, which the company recently declared itself unable to pay. The issue of bonds amounts to \$1,350,000.

#### Lake Superior & Mississippi.

It is announced that the holders of a majority of the first and second mortgage bonds have assented to the plan of reorganization as prepared by the committee, which will now probably be carried into effect. The plan, which has been heretofore published, provides for the exchange of the bonds for preferred stock.

#### Huntingdon & Broad Top.

It is proposed to build a branch from Pipe's Run to Pattonville, in Bedford County, Pa. This company offers to equip and work the branch, if the people concerned will build it. The distance is about eight miles.

#### Wheeling & Lake Erie.

This company advertises for proposals for the construction and equipment of its road from Martin's Ferry, O., to Sandusky, or for any part thereof. Also for proposals to furnish railroad material. Bids will be received up to March 20, and any information desired can be obtained from Joel Wood, President, at Martin's Ferry, Ohio.

#### Indianapolis Belt Railroad.

A new company is to be formed to complete this projected road, which is intended to connect all the lines entering Indianapolis by a road outside the city, and thus enable all transfers of freight to be made without passing the cars through the city.

#### Billerica & Bedford.

This proposed road is to extend from North Billerica, Mass., by way of Billerica Center to the Middlesex Central at Bedford, a distance of seven miles. It is to be of 24 inches gauge, and it is proposed to equip it with rolling stock built on a new plan adapted specially for light roads intended as feeders to main lines. A meeting was held in Billerica Feb. 23 to consider the question of building the proposed road. The route was reported feasible and the cost estimated at \$5,000 per mile, including equipment. A committee was appointed to take the necessary preliminary steps.

#### Wabash & Erie Canal.

The sale of this canal took place in Terre Haute, Ind., Feb. 24 and 25, as advertised. The United States District Attorney was instructed by the Attorney General to stop the sale, but did not succeed in doing so. The section of the canal now in use, from Lafayette to the Ohio line, was sold for \$85,500. Jonathan K. Gayten, plaintiff in the suit, being purchaser. The abandoned portion, from Lafayette to Evansville, sold in sections to various bidders, brought \$15,790.50. The appurtenances, as locks, water-powers, feeders, etc., also went to various bidders, bringing \$12,015, and the reservoir tracts brought \$50,796.23. The whole proceeds of the sale were \$164,101.73.

#### Cumberland & Pennsylvania.

This company has submitted to the Maryland Legislature a long protest against the proposed law reducing the rates which it is allowed to charge. It is claimed that the rates now allowed, which are 3 cents per ton per mile for distances over 10 miles, 4 cents per ton per mile from five to ten miles, and 5 cents per ton per mile for less than five miles, are not excessive, considering that the road is one of high grades and very expensive to operate, and the hauls short. The earnings of the road from 1854 up to Dec. 31, 1875, are stated as follows:

Earnings.....	\$8,957,416 11
Expenditures.....	8,498,063 24

Net profit.....\$459,352 87

Being an average for the 22 years of about 1½ per cent. per annum on the capital stock, which is \$1,500,000, without any allowance for interest on the bonded debt. It is claimed that

only very recently have the stockholders received any return for their investment, and that if the rates are reduced no dividends could be paid. It is also claimed that by law the company has to pay an exorbitant rate for the cars on its line belonging to the coal companies.

#### Sioux City & St. Paul.

This company's statement for January is as follows:

Earnings from freight.....	\$20,697 82
Passengers.....	4,010 98
Mails, express and miscellaneous.....	3,007 12
Total (\$187 per mile).....	\$27,715 93
Working expenses (74.5 per cent.).....	20,641 37
Net earnings (\$48 per mile).....	\$7,074 56
Rents received.....	115 50
Equipment bond sinking fund.....	1,031 34
Total.....	\$8,221 40
Rentals paid.....	\$1,807 21
Special equipment fund.....	2,248 00
Taxes and insurance.....	1,349 44
	8,454 65

Balance to next month.....\$2,766 75

As compared with January, 1875, the gross earnings show an increase of \$16,961.27, or 157.7 per cent.

#### Union Pacific.

In the case of Hall & Morse against the Union Pacific, the United States Supreme Court has affirmed the decision of the Circuit Court that the legal terminus of the road is on the eastern side of the Missouri River in Iowa. The Court holds that Hall & Morse, residents of Council Bluffs, as citizens, bore sufficient interest to give them standing in court to demand the performance of its obligations by the company, and that it is the duty of the latter, under the acts of Congress, to operate its whole road as one connected, continuous line, and that the bridge over the Missouri River between Omaha and Council Bluffs is a part of the road, to be used in connection with and as a part of their entire line. It is said that, if Congress did not intend to require the construction of the road from the imaginary line in the middle of the river channel, which would be an impossibility, and which is the legal boundary of Iowa, the intention must have been that the initial point should be either on the Iowa or on the Nebraska shore, and if the Nebraska shore was intended, why was it not designated? It is impossible to give a satisfactory answer to the question by the court as to the question. Why the Iowa boundary was designated if the eastern or the Iowa shore of the river was not intended to be the terminus of the road. The authority of the company to build the road to the Iowa shore was within itself power to build a bridge on the Missouri River. No express grant to bridge the river was needed, as whatever bridges were needed on the authorized line were as fully authorized as the line itself; all authority that was given to the company was as a railroad company, and not as a bridge company. The bridge was to enable the road to connect with other roads, and it was to be built for no other use. They were not allowed to charge rates of toll over it which they did not charge upon other portions of their line. The acts chartering the company manifest no intention to distinguish between the bridge over the Missouri River and other bridges on the line of the road. If it is not a part of the road, neither is any bridge between the Missouri and the western boundary of Nevada, for the power to build bridges was given in the same words. Mr. Justice Strong delivered the opinion. Mr. Justice Bradley, dissenting, is of the opinion that the Missouri River is generally understood to be the western boundary of Iowa, and that the fair construction of the charter of the Union Pacific Company is that their road was to extend from that river westwardly.

#### Mobile & Ohio.

In 1856 the State of Mississippi loaned to this company \$200,000 from what was known as the Chickasaw school fund. Interest was regularly paid on this loan, and in 1863 the Legislature passed a law authorizing companies which had received loans from this fund to make repayment in Confederate money. Under this law the money was repaid. Now, however, the Supreme Court of the State has decided that this payment in Confederate currency was null and void, and that the State can recover the amount from the company. This decision does not seem to meet with approval, and it is proposed that the Legislature now in session pass a special act to validate the payment. If this is not done the company may take an appeal, on the ground that the act of 1863 constituted a contract.

#### Seattle & Walla Walla.

The stockholders have authorized an issue of \$125,000 bonds to be secured by a mortgage on the road. They are to have 10 years to run and to bear interest not to exceed 18 per cent. per annum. The proceeds of this issue, it is believed, will be sufficient to complete the road to the Renton coal mines, from which a profitable traffic can be secured. It is expected that most of the bonds will be taken in the towns directly interested in the road.

#### St. Gothard Tunnel.

At the end of 1875 the shaft had penetrated 17,748 feet in all, or 3.363 miles, the total length being 48,950 feet, or 9.27 miles. The penetration at the Ariolo (southern) end was 8,526 feet. At the Goeschenen end, 9,222 feet. The excavation is completed, however, only for about 770 feet.

#### Delaware, Lackawanna & Western.

At the monthly meeting of the board in New York last week it was finally resolved to change the gauge of the road from 6 feet to 4 feet 8½ inches. The preparations for the change have already been begun, and all the shops of the company will soon be full of work. The present is probably considered a very good time for the change, as business is light and an unusual amount of the equipment is out of active use. The change will affect about 400 miles of track owned or leased by the company, about 130 of which is double track, besides requiring the removal of a third rail from 70 miles of the Morris & Essex Division. About 200 locomotives will have to be changed and about 12,500 coal cars, most of which are four-wheeled cars. The passenger and freight cars of the company are of such a size, however, that only the trucks will have to be changed, the bodies not being too wide for use on standard gauge.

In addition to the work in the company's shops it is probable that a number of the locomotives will be sent to outside shops for alteration. The coal cars can be changed without very much work on each car, though their number is so great that a considerable time will be required to alter them all. The change of the locomotives is the most expensive work, so far as the equipment is concerned.

This change will leave the Erie and the Atlantic & Great Western the only considerable lines of 6 feet gauge.

It is said that the company has made arrangements to run through trains to Philadelphia during the Centennial by way of Manunka Chunk and the Belvidere Delaware road.

#### Wisconsin Railroad Law.

The Vance bill, which supersedes the Potter law, has been signed by the Governor of Wisconsin and will take effect as soon as the necessary publication can be had.

#### Philadelphia, Wilmington & Baltimore.

This company, being convinced that shippers on the Delaware Division were in the habit of overloading cars when ship-



ping car-load freights, recently ordered that all loaded cars should be weighed at Middletown going north. It was found that as much as 35,000 and even 40,000 pounds had been put in a car, the maximum load of which should be 24,000 pounds. All freight in excess of the 24,000 pounds is charged to the shippers at the rate of 25 cents per 100 pounds. It is intended to put a stop to the overloading, both to prevent danger of accident to the cars and to stop the fraud on the company.

#### Dividends.

Dividends have been declared by the following companies:  
Northern Central, 3 per cent., payable April 1.  
United States Rolling Stock Company, \$2.94, gold, per share, payable March 1.

#### Erie.

At a meeting held in New York, Feb. 25, the board of directors voted to ratify the contract with the Lehigh Valley Company for the laying of a third rail from Elmira to Buffalo, 149 miles, and to Suspension Bridge, 31 miles further.

The Port Jervis *Gazette* says: "The Erie Railway is out with a new compound coupon and stop-over ticket. It has a coupon for each division from New York to Suspension Bridge, with the name of each principal station along each division on the different division coupons. Thus, if one wishes to stop at any place, the conductor punches the name of the station, thus killing the ticket for the distance traveled. Each division coupon is torn off when the next division is reached, leaving only a stub between Buffalo and Suspension Bridge."

It is reported that a plan has been submitted to the English committee now here, which is substantially as follows: First ten millions consolidated gold bondholders to be asked to fund four coupons; the five millions gold convertible bondholders to fund six coupons, and the ten millions consolidated gold bonds to fund eight coupons, the net earnings so saved to be applied to the improvement of the road and the alteration of the gauge.

#### Utah Northern.

The Salt Lake *Herald* says: "The subsidy bill passed by the Montana Legislature provides for the issue to the company of 7 per cent. 20 year coupon bonds to the amount of \$4,500 per mile, for every mile of road completed and stocked, from Franklin, Idaho, to the mouth of the Big Hole River, Montana. The road is to be finished within two years from the signing of the contract. After the completion of the first 50 miles of the road the company is to receive 60 per cent. of the bonds due, and the remaining 40 per cent. when the road shall be finished; for the second 50 miles, 70 per cent. on completion of the section and 30 per cent. when the road shall be finished; for the third 50-mile section, 80 per cent. on its completion, and the remainder when the road reaches the terminus; for the fourth 50-mile section, 90 per cent. on its completion and the balance when the road is finished; for the remainder of the road to the Big Hole the full amount of bonds shall be paid upon the completion of each 50-mile section. The bill provides for taxing the road the same as other property is taxed in the territory, and limits the rates of fares and freight charges as follows: Through first-class passenger fare, 6 cents per mile; local passenger fare, 7 cents per mile; through freight, 2½ cents per ton per mile; local freight, 3 cents per ton per mile. The act is to be submitted to a vote of the people for adoption or rejection, and if it is ratified then a special tax is to be levied in each county for the purpose of paying interest on the bonds. The proposition of Mr. Joseph Richardson and the Utah Northern Company was to build the road for bonds at the rate of \$6,000 per mile, the complement due to be paid on the completion of each twenty miles. Mr. Sidney Dillon, on behalf of the Union Pacific, agreed to aid in carrying out the proposition if accepted by Montana.

"It is thought that the people of the territory will ratify the act, and that the Utah Northern will accept the subsidy and build the road."

#### Pennsylvania.

Contracts were to be let March 1 for the grading and masonry of third and fourth tracks on the New York Division, as follows: Third and fourth tracks from South Broad street station in Newark to North Elizabeth, about three miles; fourth track from South Elizabeth to Linden, about 2½ miles; third track from New Brunswick westward about 3,000 feet.

An important reduction in the fare between New York and Philadelphia was made March 1, when the rate for a single trip was fixed at \$2.75; round trip, \$5. A single fare was previously and has been for more than 10 years past \$3.25. With the reduction the single-trip rate is a little over 3 cents per mile.

The Pittsburgh *Telegraph* of Feb. 21 says: "A new system has been inaugurated, and goes into effect to-day, on both the local and through passenger trains. The company has appointed what is known as train clerks, who lift all tickets and take charge of all moneys which hitherto have been paid to the conductors, make out a statement of the moneys received, the number of passengers carried and the number of tickets lifted, so that the managers of the road can have a thorough knowledge of the business done by each train daily. The conductors will have full charge of the trains, but will not lift any tickets nor receive any fares."

"The road has been made into two divisions, the western from here to Harrisburg, and the eastern from that city to Philadelphia. All train clerks from Harrisburg west settle at this city, and those from this city east settle at Harrisburg."

"The train clerks have been subjected to a thorough examination on railroad clerical affairs, and those who were able to stand the examination were appointed, and those who were not, the reverse. There were nineteen reported to-day ready to go out with their trains."

#### Wiscasset & Moosehead Lake.

At a special meeting held in Wiscasset, Me., Feb. 25, the stockholders unanimously voted to change the name of the corporation to the Wiscasset & Quebec Railroad Company.

#### Sunbury & Lewistown.

Pursuant to a vote of the bondholders, the parties who bought this road at foreclosure sale, May 5, 1874, for account of said bondholders, will offer it at public sale, at the Merchants' Exchange in Philadelphia, March 9, at noon. The terms of sale are \$150,000 cash on signing the bid, and the balance on delivery of the deed.

The road is 42 miles long, from Lewistown, Pa., to Selinsgrove. It was formerly leased to the Pennsylvania Railroad Company, but has not been operated at all since Jan. 1, 1875.

#### Toledo, Wabash & Western.

A dispatch from Danville, Ill., dated Feb. 25, says that in the suit for the foreclosure of the consolidated mortgage the Illinois Court has sustained all the proceedings of the committee under which a decree of foreclosure was had in Ohio. The Court refused all applications of the stockholders and the equipment bondholders to be made parties to the suit.

The stockholders expected to make their principal fight against the foreclosure in Illinois, and this decision must therefore be discouraging to them. The following day it sold on the New York Stock Exchange for 3½. It does not appear that the holders of any of the prior mortgages joined with them or responded to their recent appeal for assistance.

#### Lake Erie, Evansville & Southwestern.

President Ellery, of this road, has written a letter to the Mayor of Evansville, in which he states that all the difficulties among the stockholders have been amicably settled, and the work of building the road will now be pushed vigorously. The

entire line is expected to be completed and trains running over it by Oct. 1, 1876.

#### Evansville & Crawfordsville.

This company has agreed to build and operate a branch from its road at the most convenient point eastward to Petersburg, in Pike County, Ind., a distance of about 15 miles, provided the people along the line will raise a sum not more than \$40,000 less than the amount required to build the road.

#### St. Louis, Bloomfield & Louisville.

The iron for this road is now being shipped from the Indianapolis Rolling Mill, and track is being laid. Two new engines have been ordered from Porter, Bell & Co., of Pittsburgh, and a number of coal and freight cars from the Missouri Car & Foundry Company at East St. Louis. Most of the grading for the 36 miles now under contract is completed.

#### International & Great Northern.

Ground was broken for the extension of this road to Austin at Rockdale, Tex., Feb. 14, by the contractors. A force of 200 men and 100 teams is to be put on the grading at once.

#### Western Pennsylvania.

At an adjourned meeting of the stockholders in Philadelphia, the following statement for the year 1875 was submitted:

The earnings for the year were (\$7,376 per mile).....	\$73,760 00
The expenses (70.96 per cent.).....	44,880 96
The net earnings (\$2,142 per mile).....	\$182,089 22
There was received from other sources.....	945 25

Making a total of.....	\$183,034 47
The interest and other charges amounted to.....	\$216,126 25
Deficiencies made by losses.....	7,280 58
Leaving a deficit for the year of.....	\$40,402 32

The bonded debt amounts to \$3,000,000, of which \$1,800,000, bears 6 and \$1,200,000 7 per cent interest, making an annual charge of \$192,000. The last year the road failed to earn even this amount and, of course, left nothing to be applied to the sinking fund. If the present year does not show an improvement there will be a serious deficiency and it will be necessary to make a new loan to meet it. The road is worked by the Pennsylvania under a lease.

#### Cincinnati Southern.

The lower House of the Ohio Legislature has passed the bill authorizing the city of Cincinnati to borrow \$6,000,000 more to complete this road, with an amendment providing that the question of issuing the bonds shall be submitted to the people at an election to be held within 30 days from the passage of the bill. The bill now goes back to the Senate for concurrence in the amendments.

#### New York Central & Hudson River.

This company advertises for proposals for the construction of its great elevator in New York on Twelfth avenue, between Sixtieth and Sixty-second streets. Bids must be made by March 21. Plans and specifications can be seen in the office of the Engineer, Mr. Charles Hilton, in the Grand Central Depot.

#### St. Louis, Iron Mountain & Southern.

The earnings and expenses for 1875 are reported as follows:

Gross earnings (\$6,582 per mile).....	\$3,802,941 36
Working expenses (92.96 per cent.).....	2,013,853 89
Net earnings (\$2,612 per mile).....	\$1,789,087 47

The gross earnings increased 17 and the net earnings 45 per cent. over those for 1874. The total number of passengers carried was 612,069 at an average rate of 3½ cents per mile. While the local business has shown an increase and the through business over the Belmont line has improved, the main increase of traffic has come from the Arkansas and Texas business.

#### Dayton & Southeastern.

The contractors, Phelps, King & Co., have contracted for the iron for this road from the Cambria Iron Works, at Johnstown, Pa. The rails are to weigh 35 lbs. per yard.

#### Davenport & Blue Grass.

The old project for a narrow-gauge railroad from Davenport, Ia., west by south through Buffalo to Blue Grass has been revived. A meeting has been held and a committee appointed in each town to canvass for subscriptions. The line will be about 12 miles long.

#### St. Paul & Sioux City.

The January statement of this road is as follows:

Freight earnings.....	\$22,295 67
Passengers.....	7,297 61
Mail, express and miscellaneous.....	1,776 02
Total earnings (\$340 per mile).....	\$41,471 30
Working expenses (69 per cent.).....	28,600 64
Net earnings (\$105.50 per mile).....	\$12,870 66
Taxes, insurance and interest.....	\$1,793 92
Less rents received.....	81 00
Balance to next month.....	\$11,167 74

As compared with the gross earnings for January, 1875, there is an increase this year of \$18,945.49, or 79.3 per cent.

#### Syracuse, Geneva & Corning.

It has been decided to make the bridge over the Chemung River at Corning, N. Y., of iron in three spans of 167 feet each. Vibbard, Ball & Co., the general contractors, are now submitting the grading, masonry, bridging, track-laying and ballasting of the road in mile sections. They have established their headquarters for the present at the Jefferson House, Watkins, N. Y.

#### Milwaukee & Northern.

Under an execution recently issued this road will be sold by the Sheriff in Milwaukee, Wis., March 4. The sale will include all the property of the company and will be made subject to the first mortgage for \$2,155,000.

The road extends from Milwaukee to Green Bay, 113 miles, with a branch from Hubert to Menasha, 16 miles. It is worked under a lease by the Wisconsin Central.

#### Poughkeepsie Bridge.

A large meeting in Hartford and others in smaller Connecticut towns have been held to advocate the building of this bridge, and several committees have been appointed to see what can be done to aid in its construction. The Boston merchants have warmly indorsed the project, but do not, so far, subscribe very largely to the stock, though the list of subscriptions, in Boston and elsewhere, is growing, but rather slowly.

#### Old Colony.

This company recently bought from the Northern Pacific four locomotives and a drawing-room car. They were obtained at a very low price.

#### Pittsfield & North Adams.

A special meeting of the stockholders was to be held in Boston, March 2, to vote on the question of selling the road to the Boston & Albany Company. It is 20 miles long, from Pittsfield, Mass., to North Adams, and is now worked by the Boston & Albany under lease.

At the annual meeting last week it was voted that the directors should apply to the Legislature for authority to sell the road. All further consideration of the matter was postponed to the adjourned meeting, to be held as above.

#### Cincinnati & Martinsville.

On application of the creditors, Joseph T. Greenough has been appointed Receiver of this road. The road runs from Martinsville, Ind., to Fairland, 39 miles and is worked by the Indianapolis, Cincinnati & Lafayette under a temporary lease. Mr. Greenough represents the majority of the creditors.

#### Walkill Valley.

Mr. J. H. Jones, recently appointed Receiver, has arranged with the Erie to have train service continued over the road by that company as heretofore.

#### Butler & Shenango.

The towns along the line have subscribed \$80,000 and the right of way for the whole line for this projected road from Butler, Pa., to the terminus of the Shenango & Allegheny road at Hilliard's Mills.

#### Texas & New Orleans.

The Houston (Tex.) *Telegraph* of Feb. 19 says: "The New Orleans Railroad, it is a gratifying fact to state, is being rapidly pushed. A large force of men are employed at work between here and the Neches River, clearing, grading, laying track and constructing bridges. Before the State Fair in May the cars will be running from Houston to Beaumont. Judge Crosby, the Vice-President, is worthy of commendation for the energy and tact he has evinced in pushing the work on this road so rapidly."

#### Somerset.

The grading is now completed for three miles north of North Anson, Me., and work is progressing. It is intended to complete an extension of eight miles to Solon during the coming season.

#### Cairo & St. Louis.

A report is current that Payson & Canda, who built the road and own a controlling interest in the stock have sold out to some New York parties who will take the active management of the road.

#### Indianapolis & Springfield.

At a meeting of the directors held in Indianapolis last week the question of making the road of narrow gauge was discussed. It was reported that negotiations were pending for a branch from Baitbridge to Brazil and another from Montezuma, Ind., to Maitton, Ill.

#### Southern Minnesota.

The La Crosse (Wis.) *Republican*, of Feb. 25, says: "General Manager W. C. Van Horn, and J. J. Mitchell, a prominent railroad man from St. Louis, left here Tuesday morning for Winnebago, from which place they will at once commence negotiations for the extension of the Southern Minnesota Railway to Yankton, Dakota."

#### Kansas City, St. Joseph & Council Bluffs.

The trustees give notice that the time for completing the arrangement of the affairs of this company, under the agreement of March 25, 1874, will expire March 25, 1876. Substantially all of the holders of the first-mortgage bonds have assented to the agreement, and most of the holders of the lower securities. It is proposed now, if all the holders of the lower securities do not give their assent by March 25, to foreclose the first mortgage and reorganize the company. In case this is done, the first-mortgage bondholders will admit to the new company those holders of lower securities who have assented to the plan of March, 1874, giving them preferred stock.

#### Smithfield & Rock Run.

It is proposed to build a railroad about eight miles long, from Smithfield, O., to Rock Run, to connect with the Pittsburgh, Cincinnati & St. Louis road.

#### Southern Pacific.

The proposition made by Mr. Huntington in behalf of this company concerning the control of rates was not properly reported in this and other papers. The proposition is contained in a letter to the Chairman of the Senate Committee in reply to questions propounded by him:

"In regard to your second inquiry, I will answer that 'the company will afford all the facilities and conveniences for cheap and serviceable transportation over its road which any connecting company may offer on its own road; and, so far as the public and Government are concerned, will accept on through traffic any rates per mile which the Eastern and connecting lines are willing to make for the same articles; and this is to apply on the entire route, from our eastern terminus to San Francisco, and to that portion between Goshen and San Francisco, via the San Joaquin Branch of the Central Pacific Railroad, until the completion of our own line, via Salinas Valley and San Jose, which shall not be later than three years after the connection is effected with the Texas roads.' These restrictions may be inserted and made part of the law."

And further:

"If the government is willing to guaranty, say 7 per cent. per annum, upon the capital invested, then, perhaps, we might consider the question. But where the parties who furnish all the capital and take all the risk of losing it or getting no return, they should have the hope at least of making 10 per cent. to induce them to invest. If the bill should be so amended that whenever the net earnings, after defraying the expenses of operation, administration, maintenance and the sinking fund and interest payments on its debts, shall exceed 10 per centum per annum upon its capital stock, then Congress may regulate the rates of freights and fares by general laws, applicable alike to all railroad companies aided by the government of the United States;—then I am not sure but I could procure the consent of the company to build the road with this provision in the bill."

Another inquiry of the Committee was what guarantee would be given that the road would be built.

Mr. Huntington replies that the construction of so much of his company's road heretofore and its present rapid progress should be sufficient guarantee, especially as the Government is not asked to give anything more than lands which will be worthless without the road. Notwithstanding, Mr. Huntington says:

"I was tempted to offer a further security merely to silence these suggestions of our insincerity and inability to make good this offer. I am authorized to 'engage that the Southern Pacific Railroad Company, if the appropriate legislation is afforded, shall commence work upon the extension of the work east of the Colorado River within one year after it shall have been completed thereto from the west, and shall complete and put in running order not less than fifty miles in each year thereafter, and the whole line, to a junction with the Texas & Pacific, or other continuous road, within six years from the passage and acceptance of the act; and they are willing to deposit in the Treasury of the United States the sum of three million dollars, or at the rate of five thousand dollars per mile for the 600 miles herein contemplated, of the bonds of the company, secured by a first mortgage on all its road and branches (of which about 450 miles are now in operation, and of which fully 600 will be operation by the time this arrangement can be consummated), said bonds to be redelivered to



company, at the same rate per mile, as fast as sections of twenty or more miles are completed and equipped, as now required by law, and said bonds, or the residue of them on deposit in the treasury, shall be forfeited if they fail in either particular."

## ANNUAL REPORTS.

## Portland &amp; Ogdensburg.

This company owns a line from Portland, Me., west by north to Fabyan, N. H., 91 miles, and a short section of 2½ miles from Scott's Mills, N. H., to the Connecticut River in Lunenburg, the two being connected by 21 miles of track belonging to the Boston, Concord & Montreal Company, of which the use is leased. A line from Fabyan to Scott's Mills, 17 miles long has been located and will be built hereafter. The line is extended to Johnson, Vt., 79 miles further, by the Vermont Division, which is built under separate charters and which is now being extended 50 miles further to Swanton on Lake Champlain.

The equipment was increased during the year by 1 engine, 2 passenger and 2 observation cars, and now consists of 8 engines, 13 passenger, 3 smoking, 3 observation, 1 combination, 3 baggage cars and 2 brake vans; 45 box, 25 hay and 70 platform cars; 1 crane car and 3 snow-plows.

The credit side of the capital account at the close of the last fiscal year, Nov. 30, 1875, was as follows:

Stock paid in (\$11,248 per mile owned).....	\$1,081,726 27
Bonds (\$26,175 per mile).....	2,353,800 00
Bills payable.....	244,877 88
Income account.....	241,641 97
Sundry accounts.....	212,372 75

Total (\$43,896 per mile).....\$4,104,278 87

The city of Portland has issued \$1,350,000 bonds in aid of the road. Expenditures on capital account during the year were as follows:

Land damages, grading, bridging, fencing and construction.....	\$438,969 80
Engineering and incidentals.....	13,457 06
Deposits.....	7,923 68
New equipment.....	21,984 47

Total.....\$482,355 01

The earnings for the year were as follows:

	1874-75.	1873-74.	Inc. or Dec.	P. c.
Passenger traffic.....	\$94,370 13	\$86,436 81	Inc.	\$7,933 32 9.2
Freight traffic.....	106,997 17	78,793 78	Inc.	28,203 39 35.9
Other sources.....	24,782 95	7,935 81	Inc.	17,747 64 223.5
Total.....	\$226,150 25	\$172,965 90	Inc.	\$53,184 35 31.3
Working expenses.....	122,103 43	112,544 39	Inc.	9,559 04 8.5
Net earnings.....	\$104,046 82	\$60,421 51	Inc.	\$43,625 31 74.3
Gross earn. per mile.....	\$2,661	\$2,343	Inc.	\$318 13.7
Net earn. per mile.....	1,224	812	Inc.	412 50.7
Per cent. of exp's.....	53.99	65.36	Dec.	11.37 17.4

The mileage of passenger, freight and mixed trains was 189,705 miles, and of construction trains 86,355 miles. The large increase in traffic and receipts was made with but a slight increase in equipment and with traffic-train mileage greater by only 2.66 per cent. than that of the previous year. This result has been gained, however, by taxing the equipment to its utmost, a policy only to be followed when absolutely necessary.

The road was completed to Fabyan Aug. 7, and the connection from Scott's Mills to the Connecticut just after the close of the fiscal year. As the means for building the 17 miles from Fabyan to Scott's Mills could not be had without a considerable sacrifice, a temporary arrangement has been made for the use of the Boston, Concord & Montreal track.

Several new mills have been built on the line, and a narrow-gauge road will probably be built in the Spring which will open up to the road the lumber region of Sawyer's River and Mt. Carrigan. From these sources and the connection with the Vermont Division a large increase of traffic is expected for the current year. The line from Cambridge to Burlington, Vt., now under construction, will prove a valuable feeder.

In accordance with the vote of the stockholders, a contract has been executed with the companies forming the Vermont Division for a consolidation of management and the execution of a joint mortgage on the whole line. The affairs of the consolidated line will be conducted by a board of eleven managers, six of whom will be chosen from the board of directors of this company.

During the year 125 tons of rails and 2,000 ties were used on the older portion of the line, a number of new sidings were laid, bridges repaired and depots built. Some ballasting was also done.

The report of Chief Engineer John F. Anderson gives an interesting account of the line through the White Mountains and its completion during the year. A full and clear statement is also given of the work yet to be done on this mountain section in filling in trestles, replacing trestles by iron bridging, and other permanent structures needed hereafter; the temporary structures, however, are so built as to be safe for several years' use, giving abundant time for the permanent improvements. Accompanying the report is a letter from Mr. Benjamin H. Latrobe, the eminent engineer, expressing his approval of the location of this difficult section and of the grades and alignment adopted.

## Northern Central.

This company owns a line from Baltimore northward to Sunbury, Pa., 138 miles, with an extension of 4 miles in Baltimore and a branch from Relay House, Md., to Green Spring, 9 miles. It works under lease the Shamokin Valley & Pottsville road, from Sunbury to Mt. Carmel, 28 miles, and the Elmira & Williamsport, the Chemung and the Elmira & Canadigua roads, which together form a line 147 miles long, from Williamsport, Pa., northward to Canadigua, N. Y., making a total of 151 miles owned and 326 miles worked. Its trains run over 40 miles of the Philadelphia & Erie, from Sunbury to Williamsport, completing a main line 325 miles long from Baltimore nearly due north to Canadigua, over which its trains run.

The property is represented as follows:

Stock (\$38,688 per mile owned).....	\$5,842,000
Maryland State loan.....	\$1,500,000
First mortgage bonds.....	1,570,000
Second mortgage bonds.....	1,328,602
Consolidated mortgage bonds.....	6,752,000
Income bonds.....	4,000,000

Total bonded debt (\$100,000 per mile).....15,190,602

Total (\$139,289 per mile).....\$21,032,602

The bills payable at the close of the year amounted to \$466,420.95, a decrease of \$173,400.52 during the year. The assets in securities that may be sold and Baltimore real estate not actually needed for the use of the road amount to \$941,902.82.

The report says: "With a view to reducing the annual interest account of the company, negotiations were opened by your general counsel, under direction of the board, during the past summer, with holders of a large majority of the three millions of 7 per cent. income bonds, due January 1, 1922, resulting in their agreeing to accept in exchange for the income bonds at par, 5 per cent. currency bonds at par, having 50 years to run, secured by mortgage. To provide for this exchange, and to redeem one million other income convertible bonds, and to provide for future use of the company an additional million of bonds, if required for its other purposes, a mortgage for

\$5,000,000 was executed to the Fidelity Insurance, Trust & Safe Deposit Company, of Philadelphia, as trustees, covering the entire property of the company, subject to all existing mortgages, and it has been duly recorded. It was also agreed that, to give additional security to the bonds, all the stock held by this company in the lines north of Elmira should be transferred to the trustees of the new mortgage—the voting power and operating facilities to remain with this company—all of which is fully set forth in the mortgage, as approved by your board of directors.

"Your board believe that this exchange of securities, by which an annual saving in interest of \$60,000 will be effected in the three millions of income bonds, is a favorable one for this company and the holders of those income bonds. They now ask the approval of the mortgage, and authority to issue three millions of bonds thereunder, for the purpose of taking up and canceling the three millions of 7 per cent. income bonds of 1922, as they are presented for exchange.

"The board also ask authority from the stockholders to use one million of these bonds in exchange for the present one million convertible incomes due in 1890 at a rate of interest not exceeding 6 per cent. currency. This exchange, if effected, will reduce the mortgage liability for interest \$10,000 more per annum, the remaining one million to be reserved and not issued until required by the wants of the company, and under the approval and authority of its stockholders.

"Under the authority given at the general meeting of the stockholders, held Feb. 25, 1875, \$1,000,000 of bonds, under the consolidated mortgage created and executed May 26, 1874, were sold through the house of Drexel & Co., realizing 87½ per cent. net, clear of commissions. The proceeds are being used in expenditures for terminal facilities, real estate and construction in Baltimore, and to reduce the bills payable of the company."

After a full examination of the subject, the board has agreed to buy \$100,000 bonds of the Elmira & State Line Company, guaranteed by the Tioga Railroad Company, on condition that those companies would enter into a traffic agreement with this company for 99 years. The new road will secure to the Northern Central a considerable coal traffic.

For the year ending Dec. 31 the work done was as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Passengers carried.....	1,568,186	1,347,901	Inc.	221,185 16.4
Passenger mileage.....	29,795,534	29,903,422	Dec.	107,888 0.3
Tons freight carried.....	5,793,635	5,210,591	Inc.	583,044 11.2
Tonnage mileage.....	258,540,587	216,980,532	Inc.	41,560,025 19.2

The average mileage to each passenger, however, fell off from 22.3 miles in 1874 to 19 miles in 1875, showing an increase in short trips. In fact, the increased number of passengers was mainly in the local travel to and from Baltimore. The average receipts per ton per mile was 1.433 cents in 1875, and 1.549 cents in 1874, showing a decrease of 0.116 cents, or 7.5 per cent.

The coal tonnage of the Northern Central Railway in 1874 was 762,023 tons, and in 1875, 1,077,121 tons. There was an increase in the trade going to the Pennsylvania Railroad at Marysville and Dauphin of 259,895 tons, owing to coal from the Shamokin and Lyken's Valley regions, destined to tidewater at Philadelphia, being sent by the Pennsylvania Railroad from Marysville, instead of being delivered to the Reading Railroad Company as heretofore. There was an increase of 3,872 tons to points on the Cumberland Valley Railroad. The total tonnage to Baltimore was 267,935 tons, an increase of 61,717 tons in 1875.

The coal tonnage of the Shamokin branch in 1875 was 788,034 tons; in 1874, 601,988 tons, showing an increase of 186,046 tons.

The coal tonnage of the Elmira & Williamsport Railroad in 1875 was 338,938 tons, and in 1874, 278,418 tons; an increase of 60,520 tons. The increase from the McIntyre mines, near Ralston, was 20,297 tons. In the north-bound anthracite trade there was an increase of 40,223 tons.

The coal tonnage of the Chemung Railroad was reduced from 744,176 tons in 1874, to 645,125 in 1875, a total reduction of 99,051 tons. Of this reduction the tonnage from the Blossburg coal region decreased from 493,558 tons in 1874, to 323,238 in 1875, a loss of 170,320 tons; and the anthracite coal trade from this company's lines and from the Lehigh Valley Railroad was increased 71,769 tons.

On the Canadigua Railroad, the coal tonnage of 1874 was 550,682 tons; in 1875, 516,809 tons, a reduction of 33,873 tons. There was a decrease of 113,803 tons in shipment to Coal Point, and an increase of 79,930 tons in shipment to other stations. On the Green Spring Branch the coal tonnage of 1874 was 5,436 tons; in 1875, 12,014 tons, an increase of 6,578 tons.

The earnings for the year were as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Passengers.....	\$816,006 21	\$864,618 64	Dec.	\$48,612 43 5.6
Freight.....	3,691,762 48	3,360,217 98	Inc.	331,544 60 9.9
Other sources.....	418,479 03	451,668 83	Dec.	33,189 80 7.3
Total.....	\$4,926,247 72	\$4,676,500 45	Inc.	\$249,747 27 5.3
Working exp's.....	3,362,123 68	3,383,553 95	Dec.	21,430 27 0.6

Net earnings.....	\$1,564,124 04	\$1,292,946 50	Inc.	\$271,177 54 21.0
Gross earn. per mile.....	\$15,111	\$14,569	Inc.	\$542 3.7
Net earn. per mile.....	4,798	4,028	Inc.	770 19.3
Per cent. of exp's.....	68.25	72.35	Dec.	4.10 5.7

The earnings of the Northern Central proper were \$23,517 per mile. The entire cost of new steel rails used in renewals of track has been charged to maintenance of way, and the equipment is reported as being in better condition at the close than at the commencement of the year.

During the year 6,623 tons of new steel rails were laid and there were added to the equipment 5 engines of consolidation pattern with 20 by 24 inch cylinders; 4 passenger, 72 box and 105 eight-wheel coal cars. Some further additions to equipment are needed the current year.

The income account is as follows:

Net earnings.....	\$1,564,124 04
Dividends and interest.....	59,632 00
Pennsylvania R. R., contribution for operating Elmira, Chemung and Canadigua roads.....	82,883 27
Total.....	\$1,706,639 31
Interest on bonds.....	\$889,120 00
Dividend, Chemung R. R.....	1,659 00
Interest, discount, gold premium and taxes.....	114,230 50
Rentals.....	242,167 00
Total.....	1,247,176 50
Net result of year.....	\$459,462 81
Add surplus from 1874.....	82,704 80
Total.....	\$542,167 61
Paid for new equipment, as above.....	173,950 00
Balance available for dividend.....	\$368,217 61

The report says: "Although the results of the operation of your lines during the year 1875 were very favorable, your board considered it best that no dividends should be declared until the financial condition of the company should be strengthened by a reduction of the bills payable, and until the means should be provided for the construction of the necessary facilities at Baltimore to accommodate the growing traffic of the road. Both these objects having been accomplished, and there being in the judgment of your board a reasonable certainty, under the proposed modification of your bonded debt and the reduction of interest liability consequent thereupon, that the payment of regular semi-annual dividends can now be commenced and continued, it has been determined to pay in April next,

out of the amount of \$368,217.61 standing to the credit of net revenue, and which is equal to 6.3 per cent. upon the share capital, a dividend of three per cent., leaving a surplus of \$192,957.61 to credit of net earnings."

From unavoidable delay in maturing the plans the terminal improvements at Baltimore and Canton have not progressed as fast as was expected. They are, however, now all completed except the elevator and the warehouse for rolling freight, the foundations of which are completed and the superstructure contracted for. The Canton coal wharf and the office building in Baltimore are completed, as are the additions to the carshops. The real estate needed for freight accommodations in Baltimore has been secured. The outlay for these purposes has been less than the estimates. The completion of the improvements will enable the company to concentrate at Baltimore and to handle efficiently a great increase of business.

A contract has been concluded by which the Western Maryland Company will have the use of this company's tracks through a part of the city of Baltimore, paying trackage therefor.

The report says, in conclusion: "Through the reorganization of the management of the company, the board has been enabled to fill a number of the principal offices in the various departments of the service with gentlemen holding similar positions in the Pennsylvania Railroad Company, thus obtaining the services of officers of skill and experience in the management of railways without any charge to your company for salaries.

"Under the plan adopted entire harmony of working has been secured between the Northern Central Railway lines and those operated by the Pennsylvania Railroad Company, tending to the mutual economy and advantage of all the lines.

"Your board trust that the results attained during the past year will prove satisfactory to the shareholders. The property of the company has been much improved and its facilities enlarged. It is believed that your road can not only sustain its earnings of the past year, but, with a return of moderate prosperity to the country at large, it can satisfactorily increase them.

"The board desire to express their acknowledgments to the officers of the company and the employees in the several departments for their prompt performance of duty and the thorough and efficient management of the property intrusted to their charge."

## West Jersey.

This company works the following lines:

	Miles.
West Jersey, Camden, N. J., to Millville.....	40.83
" " Glassboro to Bridgeton.....	18.60

Total owned.....129.16

Cape May & Millville R. R., leased, Millville to Cape May.....41.35

Salem R. R., leased, Elmer to Salem.....16.88

Swedesboro R. R., leased, Woodbury to Swedesboro.....10.80

Total.....198.79

The whole constituting a main line 81.18 miles long, from Camden to Cape May, with branches to Swedesboro, to Bridgeton and to Salem. There are 14.56 miles of sidings.

The equipment consists of 19 engines, 46 passenger, 7 combination and 4 baggage cars; 31 box, 2 stock, 60 platform, 21 eight-wheel and 110 four-wheel dump cars; 26 hand and 17 push cars. Two anthracite burning engines for fast passenger service and 6 new passenger cars have been ordered and are now under construction.

The property is represented as follows:

Stock (\$29,880 per mile).....	\$1,359,750
Bonds (\$40,384 per mile).....	2,400,000

Total (\$69,264 per mile).....\$3,759,750

The company owns \$408,000 stock and \$394,284 bonds of the Cape May & Millville; \$70,000 Salem Railroad stock; \$250,000 Stockton Hotel stock and \$18,340 other stock and bonds, making \$1,136,624 so invested. The sinking fund amounts to \$174,039.94. The capital accounts of the leased lines are as follows:

	Stock.	Bonds.	Total.
Cape May & Millville.....	\$500,000	\$500,000	\$1,000,000
Salem.....	180,550	100,000	280,550
Swedesboro.....	93,350	200,000	293,350

For the year ending Dec. 31 the work done was as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Freight train mile-ages.....	105,865	93,667	Inc.	12,198 13.0
Tons freight carried.....	144,233	113,442	Inc.	30,791 27.2
Tonnage mileage.....	4,372,805	3,643,544	Inc.	729,261 20.0
Passenger train mile-ages.....	281,995	274,766	Inc.	7,229 2.6
Passengers carried.....	655,212	691,208	Dec.	34,996 5.1
Passenger mileage.....	16,290,518	17,587,908	Dec.	1,297,390 7.1

The total mileage made by locomotives was 400,153, at an average cost of 15.26 cents per mile, wages not included. The tonnage of coal from the West Jersey pits was 20,202 tons, a decrease of 17.1 per cent. from 1874.

The average receipts and cost per unit of traffic was as follows, in cents:

	Receipt.	Cost.	Net.	Receipt.	Cost.	Net.
Per passenger per mile.....	2.59	1.47	0.92	2.25	1.67	0.61
Per ton per mile.....	4.69	2.89	1.80	4.84	3.37	1.17

Showing an increase of over 50 per cent. in the net receipts per passenger per mile, and of 54 per cent. in those per ton per mile.

The earnings for the year were as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Freight traffic.....	\$209,062 27	\$186,321 89	Inc.	\$22,740 38 12.2
Passenger traffic.....	394,973 38	401,738 83	Dec.	6,765 15 1.7
Mails and express.....	55,761 96	58,311 04	Inc.	20,450 92 37.3
Total.....	\$659,797 61	\$646,371 76	Inc.	\$13,425 85 2.1
Working expenses.....	366,509 73	437,691 39	Dec.	71,181 66 16.3

Net earnings.....	\$293,287 88	\$188,700 07	Inc.	\$104,587 81 57.9
Gross earn. per mile.....	\$5,148	\$4,864	Inc.	\$284 5.8
Net " " ".....	2,288	1,449	Inc.	839 37.9
Per cent. of expenses.....	65.55	70.21	Dec.	14.66 20.9

The earnings of the West Jersey and Cape May & Millville roads were \$6,088 per mile, and the expenses 53.86 per cent. of receipts. The rental paid for the Salem road exceeded its net earnings by \$10,081.13, and that of the Swedesboro road was \$12,953.29 in excess of its net earnings. No account, however, is made of the earnings from traffic brought to the main line by those branches.

The gross earnings of the West Jersey Express Co. were \$44,112.99; expenses, \$18,384.90; net earnings, \$25,728.09, an increase over 1874, and a very gratifying result.

The income account for the year was as follows:

Net earnings of road.....	\$293,287 88
Interest on investments.....	41,364 42
Total.....	\$334,652 30
Interest on bonds.....	\$154,000 00
Transit duty, State of New Jersey.....	9,389 54
Law rents and sundries.....	1,268 81
Cape May & Millville rental.....	41,070 00
Salem R. R., rental.....	13,133 00
Swedesboro R. R., rental.....	20,101 00
Total.....	238,962 35

Surplus for the year.....\$95,689 95

The surplus is sufficient to pay a 7 per cent. dividend, but it



has been thought best to use it for new rails and equipment and the new depot at Cape May.

During the past year the system of keeping the accounts of the company has been reorganized on a plan similar to that used by the Pennsylvania Railroad Company.

During the year 9.58 miles of track in the line from Camden to Cape May were laid with new 60-pound iron rails; 3.43 miles of partly worn iron rails were relaid, principally on the branch lines, and 31,302 new ties were used in repairs. The competitive premium system for the track foremen has been adopted with excellent results.

The decrease in expenses was largely due to the careful watch of the train movements so as to avoid unnecessary service. This is especially required as the business of the road is of a very fluctuating character.

In the first part of the current year some 2,000 tons of 60-pound rails will be laid to replace the 45-pound iron still in the main track; a track-tank will be built to avoid stopping for water; a new depot at Cape May will be completed; two heavy passenger engines and six new cars will be put on the road for the heavy traffic of next summer.

#### Hartford, Providence & Fishkill.

This road extends from Providence, R. I., westward through Hartford to Waterbury, Conn., 122.36 miles. There is a freight branch in Providence 0.82 miles long. The Pawtuxet Valley road, 3 miles; the Rockville Railroad, 4.5 miles; and the South Manchester Railroad, 2.25 miles, are worked under lease. The road is, and has been for several years, worked by the trustees for the bondholders, among whom are the cities of Providence and Hartford.

The annual report submitted to the Rhode Island Legislature gives the following figures:

Bonded debt in Connecticut.....	\$1,574,500
" " Rhode Island.....	481,000
Total (\$16,687 per mile).....	\$2,055,500
The annual interest charge is \$143,385. The Hartford sinking fund amounts to \$199,333.33, and the Providence sinking fund to \$94,054.03.	
The earnings of the road for the year ending Dec. 31 were as follows:	
Passengers.....	\$485,865 09
Freight.....	446,685 03
Mails and express.....	27,877 78
Rents.....	30,799 86
Total earnings (\$7,457 per mile).....	\$991,221 66
Working expenses (61.09 per cent.).....	606,773 22
Taxes.....	18,256 68
Total expenses (62.93 per cent.).....	\$825,029 90
Net earnings (\$1,773 per mile).....	\$166,191 66
Interest paid.....	166,921 61
Surplus for year.....	\$2,870 15

The only report published with which this can be compared is that for the year ending Sept. 30, 1874. Making the comparisons with that period, the past year shows an increase of \$16,070.34 or 1.7 per cent. in gross earnings; an increase of \$5,063.28 or 0.6 per cent. in expenses and taxes, and an increase of \$1,607.06 or 7.4 per cent. in net earnings.

#### Master Car-Builders' February Meeting.

The meeting was called to order, Feb. 17, by President Garey, who stated that the subject for the evening was "Draw-bars and Buffers for Freight Cars." First, however, they would be addressed by a practical railroad man, who had given a great deal of attention and thought to the subject of the management of railroads, financially and mechanically, Mr. James M. Blanchard, of Washington. Mr. Blanchard spoke as follows: "I am well aware that he who commences to address an audience with an apology places himself at a disadvantage before that audience. Still, I will venture to say that through life my business has been thinking and working out, and not talking. So, if you have any criticisms to pass upon me, I hope they will be upon the thoughts presented, rather than on the words used to express those thoughts."

"In presenting my views upon the subjects that may be touched upon, I shall do it in the form of a talk upon practical matters, rather than as a lecture upon any one subject, and shall begin by endeavoring to impress upon your minds the importance of correct thinking and of the proper application of such thought."

"Most of the errors that had crept into the practices of car-builders and car-repairers had been the result of wrong thinking, or perhaps, more properly, from the want of systematic and long-continued thought. For instance, many years ago it was customary to use journals on car wheels 3 inches in length and 2½ in diameter, but these were found too small. The answers to the question why they were too small was that they were not strong enough. That this answer was and is to this day only a partial one is now admitted. A correct method of thinking upon this subject requires that you should ask yourselves, What effect would be produced by enlarging or lengthening our journals, or making both these changes, beyond the mere increase of strength? Having thus questioned yourselves, you will find yourselves launched on an almost illimitable sea of thought, which must be explored and sounded to its very depths to determine the question philosophically. The time is too short to permit me to speak of all the consequences which would follow from so simple a change as the lengthening or enlarging a journal, but I will mention a few of these."

"First, it would make necessary a change in the lubricant used. Second, it lessens the abrasion of the metal, and so decreases what we are in the habit of calling friction. Third, it makes it possible to use a different kind of metal for the box in which the journal rests; and, fourth, it affects the weight of the axle, its box and its housing."

"And here I want to say a few words upon the subject of friction. What is friction? I believe that the general thought of the public on that subject is, that it is resistance to motion. While that is partly true, it is only a partial explanation of what friction is. As I understand it, friction is abrasion, and what we call friction occurs just in proportion to the amount of abrasion that takes place between two pieces that are in contact, one or both being in motion. It is perfectly clear to my mind that when we take a car journal, prepare it for the box, place the box upon it, put the weight upon the box, and, after having lubricated it, the car is put in motion, from the very instant that motion occurs abrasion begins to take place. That abrasion is what we are in the habit of calling friction. You all understand that the very instant that car begins to move the material of which the box is made, and the material of which the journal is made begin to be disintegrated, something is taken away from each of those two pieces of metal. That disintegration will vary just according to the two kinds of metal that we put in contact. We shall find that if we take lead and put that upon the journal, we have one degree of disintegration; and if we put hardened cast steel on the journal in the form of a box, we shall have another degree of disintegration; and that disintegration is what produces the resistance to the movement, and hence we call it friction."

"In the early days of railroading, it was customary to use a wrought-iron journal and a composition box of copper, tin and zinc. It answered a good purpose, because there was less disintegration and the journal was not worn away as fast with that

metal as it would have been—with cast iron, if you please. Suppose the cast iron not to be perfectly lubricated. If you were to run a dry cast-iron box, the disintegration would be very rapid and the power to run that car would be just in proportion to the amount of disintegration that took place, so far as this part was concerned."

"Having said this much on the subject of journals, let us turn our attention to wheels. Here is a theme which must be of the same interest to you that it is to me. In entering upon this point it is of importance that we commence at the right point. Many years ago I learned this fact, that in order to think advantageously, we must think correctly, for nature's laws are inflexible. Thinking does not make a fact; it only discovers a fact. I want to impress this on the mind of everybody, because so many errors have crept into the practice of railroad men because of wrong thinking, and more, perhaps, because of adopting the thoughts of others, that it seems to me very important that we learn to think first correctly, and then we shall think in accordance with nature's laws."

"I shall speak first of the question as to the material out of which wheels should be made. I do not advocate anybody's wheel or any particular kind of material. But suppose, for instance, we make a wheel of chilled iron, which is very hard. What do we make them of chilled iron for? Merely to prevent wear. We make them hard for the purpose of making them durable. What is the effect of this chill on the track? The master car-builder says the wheels come into my department. We must keep the expenses of our department as low as possible. Now, a chilled cast-iron wheel will last longer than any other wheel, and so we will make chilled wheels; and yet, it may be very bad policy to use those wheels, because the master car-builder forgets that the injury done to the rails by those wheels has to be paid for by the same company, and out of the same funds of the railroads that the wheels are paid for. I shall be met with the assertion that the action of the wheel on the track is not in the nature or character of a saw. I shall admit that, if the wheel were perfectly smooth and the track perfectly smooth there would very little of the pounding action take place. But we must speak of things as they are in practice. And here permit me to digress a little. In coming from Washington to-day, I was very forcibly impressed with this idea of blows on the track. We came at a pretty high rate of speed part of the way, and every person in the car, lady and gentleman, was tossing up and down. Why did this occur? Because the wheels under those cars were striking just that number of blows on the rails. If any of you gentlemen should see a man in your shops drawing iron for a draw-head who should use a lead hammer, you would say he was crazy, or in a fair way to become so, because you want to distribute the particles of the iron itself. On the contrary, if you were to set a man to fitting up in your foundry where we want shaping and forcing together, and he should use a steel hammer for that, you would say, at least, that he didn't understand his business; but he should have reversed his two operations—the lead hammer for one place and the steel hammer for the other. I take it that the operation of hardened wheels is precisely like that. When these blows are given, the consequence is a greater destruction of the iron of which the rail is composed, or the steel, as it may be, and by destruction I mean disturbance of the particles; consequently a greater deterioration of the material out of which the rail is made. This being the case, it does not follow that a chilled-iron wheel, because it was longer than another wheel, is a cheaper wheel, by any means. I grant that there are many laws that enter into the consideration of what is the best material of which to make a wheel. If the chilled wheel is enough cheaper to pay for the injury it does to the rail, and is equally as safe, and the train can be drawn as easily as with a softer wheel, that is the wheel to use. But all these things must be determined before we can decide on the economy of using that kind of rail. The material out of which to make a wheel is that which will cause the disturbance of itself and the rail to be just as nearly alike as possible. If you take a hammer and strike a bar of iron a certain number of blows, you deteriorate the iron just to the extent of the force of those blows, and just in proportion to the difference between the material of which your hammer and the material of the iron is composed. Is it not equally true in reference to the blows given to the rail? If you use steel rails, you should, in my judgment, use steel wheels. I hope that the time is not far distant when we shall not use anything but steel."

"Another matter to which I wish to call your attention is the material out of which to construct car-bodies and trucks. That is just the kind of material which will endure the longest and afford the greatest amount of strength with the least number of pounds of weight. You all know that we are carrying a great deal of dead weight—non-paying freight, I think is a better term. It is the non-paying freight on our railroads that has brought them into their present financial condition. It is for you, gentlemen, to determine what that material is. My judgment would be a compound of wood and steel, because there are various kinds of strains to be put on that material. We want what we call stiffness. We want resistance of torsional strains, resistance to compression, durability or freedom from decay, and these are necessary to make a good car. If we can make a car out of material, or materials, that will serve all these purposes, and reduce the weight of the car, it is of very little consequence what the first cost of the material is. I believe it will be found that a compound of steel and wood—I speak now of sills, plates, car-trucks and all that sort of thing—will be the best material."

"One thing more I want to say about the size of car journals and the materials out of which the boxes should be made. Some say that if you increase the diameter of the journal, you increase the friction. That is a great mistake. Let us see what the laws of nature say. You have resting upon the journal a given amount of weight. Every additional pound you say increases the friction; I say, the abrasion. Now take the standard and we have a journal two inches in diameter. With the same length we increase it to 3 or 3½ inches. Some say that increases the friction on the journal. I say that the weight upon that journal acts to bring the particles of the two into more intimate contact. The more weight on a small journal, the more intimate the contact and the more rapid the degree of abrasion. If we spread that over a greater area of surface, we have only the same amount of weight. I speak of the diameter and not of the length. Consequently, the contact between the particles of the two is less intimate, and consequently, instead of making more friction, it makes less. Beyond all question, it seems to me car journals should be made as large as they can be, consistently, without making the wheel-seat too large."

"Now, then, what should be done to car journals after they are prepared to receive the boxes, and what kind of material should be used in making boxes? In the first place, it seems to me that the car journal should be made hard, and that can very easily be done. There are many processes. You all understand the old case-hardening. Other processes are cementing or steeling, which will increase its wearing surface without injury."

"Lead has been used for car boxes, and it has performed well, very well."

"And here is a curious fact: we must either make our car box of the softest metal we can get, or the hardest."

"Having hardened our journals by case-hardening or steeling, I should next make the box as hard as possible. I believe that it is possible to make a journal and a box so hard, or so soft, as to cause them to run with one-twentieth part of the oil now used. I believe that it is possible to make them so as to run

and reduce the abrasion 80 per cent. of what now takes place. And I think that this result, when reached, as I have no doubt it will be, will be reached by hardening the journals as hard as possible, and then using the softest material or the hardest material—and I have great doubt, yet, which is the best—for boxes."

"One thing more in reference to this matter of looking at things, and I speak now from my own experience. I was in the habit, for a great many years, of looking at things through my own eyes alone; but I found after a while that that wouldn't answer. I could see a mass of iron before me, that railroad gentlemen call an axle, with my eyes; but I couldn't see the particles of which it was composed and understand their relation one to the other, the cavities between these particles, and understand what effect they have upon the mass. And so there are a thousand and one things that I can't see with my eyes and your eyes. So I think you must learn to look with something else, with your brain, with your reasoning faculties, upon these things. We must so study them, so investigate that we shall be able to tell exactly what the effect of what we are going to do will be. If we can do this, we shall make a great advance on our present practices."

At the close of Mr. Blanchard's discourse, Mr. Harry Rodgers, of Janesville, Wis., presented a car journal which had made 107,100 miles with a wear of less than four pounds, and a wear on the axle of less than one-fourth of an inch. It ran under an express car which had an average load of seven tons, making the total weight 19 tons.

Mr. Blanchard, after inspecting the journal, said he thought it proved his theory. There was a box having a given degree of hardness. That degree of hardness, together with the form and the quality, and the care taken of it, had enabled it to do a large amount of service, and the box was not worn out yet, hardly. He thought if the journal had been made as hard as it could have been made, it would not have worn perceptibly in that time.

Mr. Rodgers said the brass was made from a pattern he made himself, and he would defy any man to have a hot box with that brass.

Mr. Adams asked Mr. Blanchard if we should lighten our cars and place them in trains made up of such heavy cars as we are now running, whether we should not expose them to danger of injury.

Mr. Blanchard said that was an important question, but he thought if the lighter cars were made of the same weight as the ordinary cars and had sufficient strength to resist the compressing force brought against them and the torsional strain on them, he could not see that heavier cars would be prejudicial to them.

Mr. Adams said the question seemed to be to get lighter cars and yet get sufficient strength to resist the connections with our present heavy stock. When we found a weak point in our cars we made it stronger, and so we have made our cars very heavy; but as the strength of the car is increased, the tendency of the agents is to put bigger loads into them, increasing the concussive force and breaking them up in the same proportion that they did before. It had occurred to some of them that it would be dangerous to make a lighter car, for fear of the weight that would be put into them. If they were sufficiently versed in the strength of the materials, they might accomplish the object. On the other hand, perhaps men who had the scientific knowledge would not have the practical knowledge necessary, and these must be combined to accomplish the result.

Mr. Blanchard said he would recommend that experiments be made and if it is found that one force for this material to resist is compression, and that a pound of steel can be put in such form as to resist as much compression as can possibly be resisted by a pound and a half of wood, I say, use the steel. He would have different materials subjected to the different kinds of strain of compression, torsion, etc., and ascertain which would bear the most; let that material be substituted for the wood.

The President then notified the gentlemen present who had models of car buffers, couplings, etc., to present them.

Mr. Eaton Stone presented his coupler.

Mr. Dutcher, of Port Jervis, exhibited a model of an automatic coupler, for which he claimed simplicity, cheapness, durability, ease of application, etc.

Mr. Filkins claimed for his coupler that with a 4-inch dog and a foot of link it prevented the lateral motion of the car, drawing the train in a direct line.

Mr. Adams said that the presence of all these different models gave encouragement to car-builders to come to this conclusion: that the link and pin are an immense expense to railroads, and the consequence is that we have made up our minds, if it were possible, to have something to obviate the difficulty, a coupling that could be made without the pin or link, and be done safely. He thought he should have to admit that Mr. Stone had come nearer to it than anything he had seen, and yet he thought there may be some objections raised to it.

He then referred to a model which came from Dubuque, upon which Chicago officers had reported favorably after practical examination. The same difficulty occurred, however, that of unhooking. He did not know anything produced yet that would really meet expectations and warrant adoption. The matter of adopting a self-coupler would be of little value to one road. Suppose, for instance, his road adopted a coupler, and no other road did. Their cars are away from home more than at home. They would get no advantage from the coupler, but somebody else would. No one road can adopt a coupler unless it is made universal. His own conviction was that when they were able to come forward with some practical thing which they could demonstrate beyond a doubt to be a success and a matter of economy to adopt, there would be a movement of railroads to carry that into effect. Mr. Stone's adds considerable expense over the ordinary coupler. That would be a disadvantage. But, as Mr. Blanchard said, it makes little matter what a thing costs, provided they get their money out of it. But they had to deal with men who look pretty closely at what a thing costs, and they must be able to demonstrate clearly that it will pay for itself. He thought there was a good deal of merit in the buffer from Toledo, but it had the objection that the others had, that it would require a long link.

President Garey said a demand was felt all over the country for an attachment to couple cars together. He thought the Patent Office would show more inventions for this than any two others. They had more damage occurring from buffing than drawing. If they could overcome the difficulties of buffing, he thought there would not be much trouble in getting a good attachment for drawing, whether it were a hook, or they had to continue their link with a fast pin. It was certain that they must do something. Their managers were now drawing with the same engines 50 to 65 cars that five years ago would not have been required to take over 15 to 17. That calls for an increase of strength between the drawing attachments and an increase of the strength of cars.

Referring to the injuries to persons which had been mentioned by some of the speakers, Mr. Adams said that he thought too much fault was laid to the construction of the cars. About 9 out of 10, at least 7 out of 10 are injured by their own carelessness or the carelessness of some other employee. Then the accidents on his road were chiefly in uncoupling. Then, too, he thought whiskey was responsible for more even than all the imperfect contrivances.

A vote of thanks was given Mr. Blanchard for his address, and the meeting adjourned.